

AMPEX



MODEL VPR 5800 VIDEO PRODUCTION RECORDER OPERATION MANUAL

INTRODUCTION

This manual provides operating instructions and routine preventive maintenance information for the AMPEX model VPR5800 video production recorder.

Each new AMPEX VPR5800 video production recorder was accurately adjusted, carefully inspected and thoroughly tested before shipment from the factory.

Upon receipt of your video production recorder, inspect the shipping carton and the equipment for damage. Any visible damage should be reported to the local carrier, so that corrective action can be taken to repair or replace the damaged unit.

Read this operation manual thoroughly before attempting to use the VPR5800. If it does not function properly, or if there is some question about how it should operate, contact your local dealer for additional information.

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GENERAL DESCRIPTION

The VPR5800 is a portable video production recorder utilizing the Ampex one-inch helical scan tape format. It provides the means for recording, and playing back, one channel of video (color or monochrome) and two channels of audio information, which can originate from a video tape recorder/player, video camera, video control center/switcher fader output, or modified TV receiver.

Additional features of the VPR5800 are as follows:

1. An "NTSC" type color output.
2. Assemble and insert editing modes are provided so that the end-user can record additional (or insert) video material on a previously recorded tape, without disturbance to the playback at the edit transition points.
3. Two R.F. carrier modes, High and Low. The Low mode represents a carrier frequency range of 3.5 to 5.5 MHz; the High mode has a range of 5.5 to 6.6 MHz.
4. Two audio channels that may be utilized independently from one another, and the video channel, during the RECORD or PLAY mode.
5. Two audio inputs, switch selectable for either low impedance microphones or line bridging inputs.
6. Two 600 ohm audio line outputs.
7. Facilities for a 3.58 MHz input and output when "dubbing" color between the VPR5800 and another video tape recorder.
8. A slow motion control to vary the tape playback speed from approx. 1/3rd normal speed down to a stop, or stillframe mode. The NORM position allows the tape to play at the normal speed of 9.6 ips.
9. A minutes/seconds tape counter for accurate editing.
10. An end of tape sensor that turns off wind power whenever tape is not present between the rubber-sleeved capstan and rotating scanner.
11. A protective drum stall sensor.
12. Reel Hold-downs for securing the supply and take-up reels to their respective turntables.
13. Control of the RECORD, PLAY and STOP function from a remote site, or an Ampex model CC450 camera (excluding the PLAY function).
14. An optional R.F. Modulator accessory that provides an audio and video modulated R.F. carrier output, which can be connected to a standard television receiver antenna terminals.
15. Horizontal and Vertical operating positions.
16. A hinged (removable) cover, with viewing window. The recorder can be operated with the cover in place, which provides dust-free and quieter operation.

WARNING

TELEVISION PROGRAMS MAY BE COPYRIGHTED. RECORDING OF SUCH MATERIAL, PARTICULARLY IF FOR A COMMERCIAL PURPOSE, MAY BE CONTRARY TO PROVISIONS OF THE UNITED STATES COPYRIGHT LAWS.

SPECIFICATIONS*

GENERAL

POWER REQUIREMENTS: 105 to 125 volts, 60 Hz at 2½ amps. detachable 3-wire power cable and plug.

TAPE SPEED: 9.6 ips.

VIDEO WRITING SPEED: 1000 ips.

ROTARY HEAD LIFE: 1000 Hrs. min. Uses 2 plug-in field interchangeable ferrite heads, 1 video record/reproduce, 1 video erase.

REWIND TIME: 4 minutes (for 3000 ft. of tape).

FAST FORWARD TIME: 4½ minutes (for 3000 ft. of tape).

REMOTE CONTROL FACILITY: Remote control connections available for play, record and stop at back panel for use with remote control device or Ampex CC450 camera. Remote connector also provides interface connections for dubbing and optional RF modulator.

TAPE: 1" wide, 1 mil Mylar base, 0.4 mil. coated video tape. 3000 ft. for 1 hr. recording time on 9 3/4" reel.

CASE: Vinyl clad sheet aluminum with die cast and frames; sturdy integrated handles. Hinged, removable dust cover of similar construction has smoked plexiglass window.

SIZE: Overall 26¼" x 18¼" x 12¼".

WEIGHT: 85 lbs.

OPERATING POSITION: May be operated in the horizontal or vertical plane. Rack mount kit available on special order.

VIDEO

PERFORMANCE SPECIFICATIONS:

FREQUENCY RESPONSE: 30 Hz to 4.2 MHz +1, -3dB, high carrier mode.

SIGNAL TO NOISE: -44dB, Peak-to-Peak video to rms noise; -47dB, Peak-to-Peak composite signal to rms noise, high carrier mode.

HORIZONTAL RESOLUTION: 350 lines limiting visual resolution on playback of monoscope test pattern in high carrier mode.

INPUTS AND OUTPUTS:

INPUT: 75 ohm unbalanced 0.5 - 1.5V P-P, BNC or remote connector.

OUTPUT: 75 ohms unbalanced, 1.0V ±10% P-P, BNC type connector.

SYNC

INPUT: 75 ohm unbalanced 4.0V P-P nominal, BNC type connector. (Use of sync input switches servo systems from video input or internal references.)

AUDIO

TRACKS 1 AND 2

PERFORMANCE SPECIFICATIONS:

FREQUENCY RESPONSE: ±4dB, 75 Hz to 12 kHz.

SIGNAL TO NOISE: -45dB @ 3.0% T.H.D.

FLUTTER & WOW: Flutter - less than .18%, .5-250 Hz. Wow - less than .04% rms .5-6 Hz. Measured according to ASA standards.

INPUTS & OUTPUTS:

INPUTS:	Nominal Level	Impedance
Microphone	.2 MV	200 ohms Balanced
Line	100 MV	100k ohms Balanced

Remote (Track 1 only).

Microphone and line inputs use same XLR-3 type connector and are switch selected.

OUTPUTS:

LINE: 600 ohms balanced, +4dBm level, XLR-3 type connector.

SPEAKER/HEADPHONES: 2 watts into 8 ohms. Use of speaker/headphones output silences internal speaker.

*SPECIFICATIONS AND DESCRIPTIONS SUBJECT TO CHANGE WITHOUT NOTICE.

DESCRIPTION OF CONTROLS, INDICATORS AND RECEPTACLES

GENERAL

Operating controls, indicators and receptacles for the model VPR5800 are conveniently located on the front control panel and rear connector panel. All controls and receptacles are clearly identified as to their function, and grouped to allow operation with a minimum of operator movement.

In the following paragraphs, a description of each control, indicator and receptacle is keyed to the encircled numbers in figures 1 and 2.

FRONT CONTROL PANEL

(Reference figure 1)

1. AUDIO MONITOR SELECTOR

This selector is used to select the audio channel to be monitored during the PLAY or RECORD modes.

a. When the selector is in the "1" position, the audio monitoring system is connected to the audio 1 channel.

b. When the selector is in the "2" position, the audio monitoring system is connected to the audio 2 channel.

The output level of either audio 1 or audio 2 (during the PLAY mode) to the internal speaker or remote speaker is dependent on the setting of the Power/Volume control (item 21).

One channel of audio (1 or 2) can be monitored at a time (during the RECORD or PLAY modes) when using the internal speaker, or a remote speaker connected to the rear panel. Both channels can be monitored if an external amplifier/speaker system is connected to the Audio 1 Out and Audio 2 Out receptacles on the rear panel.

Line output levels are not dependent on the Power/Volume control (item 21) or the Audio Monitor selector.

2. AUDIO 2 RECORD INDICATOR

This indicator will light when the Audio 2 Record button (item 3) is depressed, which indicates that the audio 2 channel circuitry is activated (RECORD STANDBY mode), and ready for recording.

3. AUDIO 2 RECORD BUTTON

This button can be used in the following ways:

a. **Audio 2 only RECORD** — This mode is initiated by depressing the Audio 2 Record button and the Play button (item 19) simultaneously.

b. **Audio 2 and Audio 1 and/or Video RECORD** — This mode is initiated by depressing the Audio 2 Record button and the Main Record button (item 15) simultaneously.

c. **Audio 2 only EDIT RECORD** — This mode is initiated by depressing the Audio 2 Record button and the Play button (item 19) simultaneously.

d. **Audio 2 and Audio 1 and/or Video EDIT RECORD** — This mode is initiated by depressing the Audio 2 Record

button and Main Record button (item 15) simultaneously; then moving the appropriate Video and/or Audio Record/Play Levers to the RECORD position while the tape is moving.

e. **Audio 2 Record Standby mode** — This mode is initiated by pressing the Audio 2 Record button at any time when the tape is not moving. The audio 2 standby mode is used to set up proper record level before recording audio 2. The actuation of any tape motion control, or Stop control, automatically cancels the audio 2 standby mode.

4. AUDIO METER SELECTOR

This selector, depending on the setting, allows the operator to monitor (on the Audio Record Level meter, item 7) the audio 1 and 2 record and playback levels.

Place the selector in the "1" position to monitor the level of the audio 1 channel in the RECORD or PLAY modes.

Place the selector in the "2" position to monitor the level of the audio 2 channel in the RECORD or PLAY modes.

5. AUDIO 2 RECORD LEVEL CONTROL

This control is used to adjust the proper level of the audio 2 signal to be recorded. It is adjusted so that the Audio Record Level meter (item 7) indicates 100% during peak sound levels.

However, before the audio 2 signal level can be adjusted, the Audio Meter selector (item 4) must be placed in the "2" position, and the Audio 2 Record button (item 3) must be momentarily depressed. Set the Audio Monitor selector (item 1) to the "2" position, and turn the Power/Volume control (item 21) level up if it is desired to monitor the audio 2 signal through the internal speaker while adjusting.

6. SLOW MOTION CONTROL

This variable control can vary the speed of the tape (during the PLAY mode) from the normal 9.6 ips (NORM position) down to a complete stop, or stillframe mode.

NOTE

This control must be in the NORM position (full CW until it clicks) during any of the RECORD modes.

7. AUDIO RECORD LEVEL METER

In the RECORD mode, the meter provides a visual indication of the audio 1 and 2 signal level while adjusting the Audio 1 or Audio 2 Record Level controls (items 9 and 5 respectively). However, the Audio Meter selector (item 4) must be set to the "1" or "2" position to correspond to the audio signal being adjusted.

In the PLAY mode, the meter indicates the line level of the audio playing back from the tape.

8. VIDEO RECORD LEVEL (AND PLAYBACK TRACKING) METER

In the RECORD mode, the meter indicates the level of the video signal to be recorded. The video level is adjusted for a 100% indication (during peak white scenes) with the Video Record Level control (item 10).

In the PLAY mode, the meter is used in conjunction with the Playback Tracking control (item 12) to optimize the video head-to-tape tracking. The Playback Tracking control is adjusted for a maximum meter indication while playing back tapes.

9. AUDIO 1 RECORD LEVEL CONTROL

This control is used to adjust the proper level of the audio 1 signal to be recorded. It is adjusted so that the Audio Record Level meter (item 7) indicates 100% during peak sound levels. However, before the audio 1 signal level can be adjusted, the Audio Meter selector (item 4) must be placed in the "1" position. In addition, the Audio Record/Play Lever (item 16) must be placed in the left-hand (RECORD) position.

Set the Audio Monitor selector (item 1) to the "1" position and turn the Power/Volume control (item 21) level up if it is desired to monitor the audio 1 signal from the internal speaker while adjusting.

10. VIDEO RECORD LEVEL CONTROL

This control is used to adjust the proper level of video to be recorded. It is adjusted for a 100% indication on the Video Record Level meter (item 8) during peak white scenes. However, to accomplish this, the Video Record/Play Lever (item 17) must be in the left-hand (RECORD) position.

11. CARRIER SELECTOR

Set this selector to the LOW position when playing monochrome tapes recorded on low carrier recorders (VR5000, 6000 and 7000 series). The LOW position is also used when recording monochrome tapes that will be played back on low carrier video tape recorders/players.

Set the selector to the HIGH position when playing color tapes, or monochrome tapes, which were recorded on high carrier recorders. The HIGH position is also used when recording color or monochrome tapes that will be played back on high carrier video tape recorders/players.

The LOW position represents a carrier frequency range of 3.5 – 5.5 MHz; the HIGH position has a range of 5.5 – 6.6 MHz.

12. PLAYBACK TRACKING CONTROL

This control is used to optimize the video head-to-tape tracking.

The Playback Tracking control has a "set" position in addition to the normal variable control range. Recordings made in the "set" position can be played back on the originating recorder with the Playback Tracking control in the "set" position. This type of operation results in optimum playback tracking without the need for manual

tracking adjustment, and is strongly recommended for editing operations.

NOTE

To place the Playback Tracking control in the "set" position, rotate it fully clockwise until it clicks into the detent position of the control.

13. EDIT MODE SELECTOR

This is a three (3) position switch that enables the operator to select between two (2) modes of editing, and an edit-off, or normal, mode of recording video. The three positions are defined as follows:

a. OFF — When the selector is in the OFF (edit-off) position, normal recording of tapes is accomplished.

b. ASSEMBLE — The ASSEMBLE position is used when it is necessary to assemble, or add on, video information to the **end** of a previous recording.

It can also be used when it is desired to sequentially record a tape from several sources, which requires assembling each source one after the other.

c. INSERT — The INSERT position is used when new video is to be inserted at some point within a previous recording.

14. MAIN RECORD INDICATOR

A red light adjacent to the Main Record button, will light to indicate that the RECORD mode is activated when the Main Record button (item 15) is depressed.

15. MAIN RECORD BUTTON

Depressing this button starts the tape motion and activates the selected RECORD mode (audio and/or video). In addition, the red Record Indicator (item 14) will light.

However, the Audio and/or Video Record/Play Lever(s) (item 16 and/or 17 respectively) must be in the left-hand (RECORD) position before the button can be depressed.

To stop the tape motion in the RECORD mode, depress the Stop button (item 20).

16. AUDIO RECORD/PLAY LEVER

This lever is used to select the audio 1 channel PLAY or RECORD mode of operation. It is placed in the right-hand position for the PLAY mode, and the left-hand position for the RECORD mode.

17. VIDEO RECORD/PLAY LEVER

This lever is used to select the video PLAY or RECORD mode of operation. It is placed in the right-hand position for the PLAY mode, and the left-hand position for the RECORD mode.

18. EDITOR INDICATOR

This red indicator will light when the Edit Mode Selector (item 13) is placed in the ASSEMBLE or INSERT position, which will indicate that the electronic editing circuitry is activated.

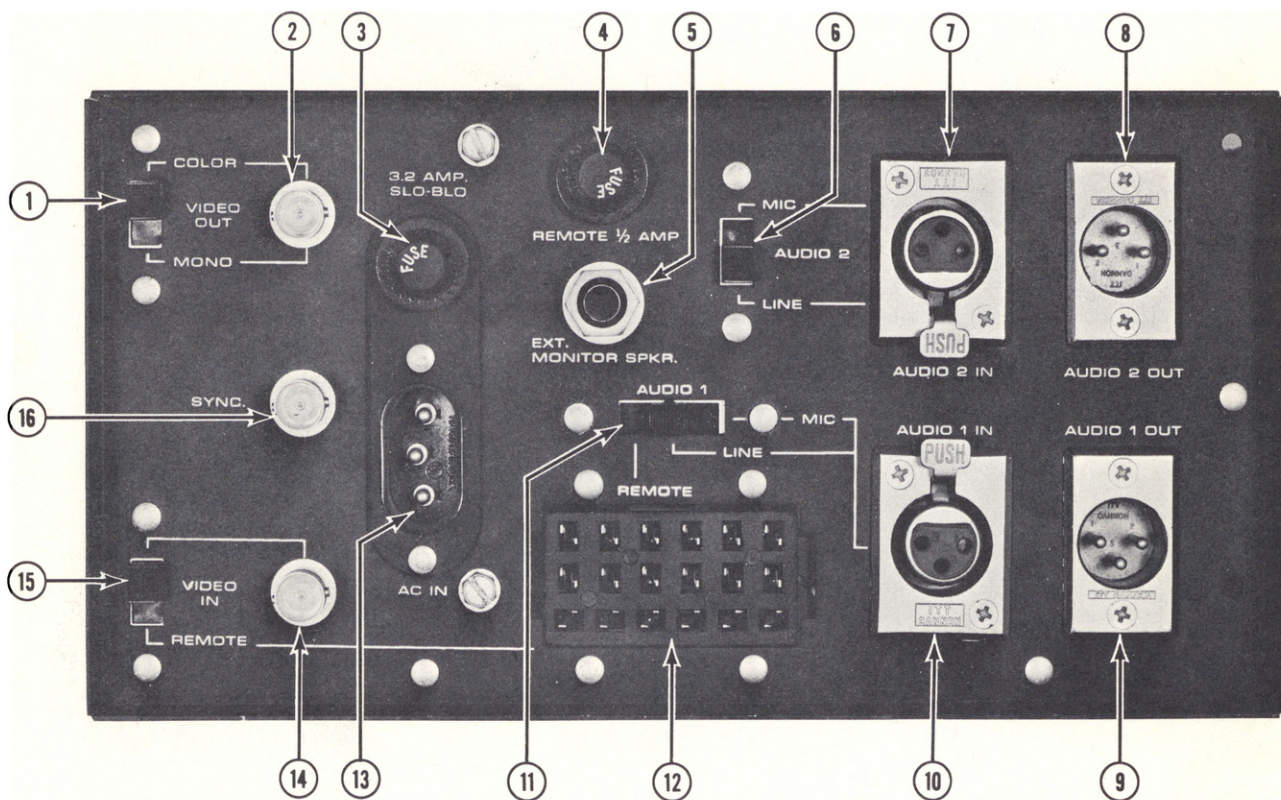


Figure 2 Rear Connector Panel

19. PLAY BUTTON

Depressing this button starts the tape motion and PLAY mode of operation. However, the Audio and Video Record/Play Levers (items 16 and 17 respectively) must be in the right-hand (PLAY) position.

To stop the tape motion, depress the Stop button (item 20).

20. STOP BUTTON

Depressing this button during any RECORD or PLAY mode of operation will stop the tape motion.

It is inoperative during the fast forward and rewind modes.

21. POWER/VOLUME CONTROL

Clockwise rotation from the "off" position applies power to the VPR5800.

NOTE

Allow a minimum of 10 seconds to elapse, after power has been applied to the VPR5800, before attempting to depress the Play or Record buttons. This will allow time for stable servo system lockup.

Further clockwise rotation increases the volume of the Audio 1 and 2 signal to the internal speaker, or a Remote Speaker connected to the rear connector panel. It does not control the gain to the Audio 1 and 2 Line Out receptacles on the rear connector panel.

22. POWER INDICATOR

Indicates when power is applied to the VPR5800.

23. READY/THREAD CONTROL KNOB

This knob, when rotated clockwise from the Ready position, moves the entrance and exit guide arms away from the drum assembly and stationary head mounting. This action will allow the operator to thread the tape through its operating path with ease. Note however, that through the first few degrees of clockwise rotation (from the Ready position), it is difficult to turn the knob. This is due to a locking mechanism for the entrance and exit guide arms. It will be encountered each time the knob is rotated from the Ready position to Thread, and vice-versa. When the tape has been threaded, rotate the knob counterclockwise to the Ready position.

Interlocks prevent the Record button (item 15), Play button (item 19) and Rewind/Fast Forward Control knob (item 24) from operating when the Ready/Thread Control knob is NOT in the Ready position.

Placing this knob in the Thread position (from the Ready position) during the RECORD or PLAY modes, will cause the VPR5800 to switch to the STOP mode automatically. When the VPR5800 is in the Fast Forward or Rewind mode, a mechanical interlock prevents rotation of the Ready/Thread control knob to the Thread position.

24. REWIND/FAST FORWARD CONTROL KNOB

Placing this control knob in the Rewind position provides a rapid transfer of tape from the take-up reel to the supply reel.

When the knob is in the Fast Forward position, a rapid transfer of tape is accomplished from the supply reel to the take-up reel.

This control knob will function only when the Ready/Thread Control knob (item 23) is in the Ready position. Operating this control knob during the RECORD or PLAY modes will override either of these functions.

25. REEL HOLD-DOWN

The Reel Hold-downs allow the operator to lock the supply reel and take-up reel in position.

Place the reels on their respective turntable hubs and rotate until the lugs on the turntable mate with the grooves in the reel; then turn the Reel Hold-down handle clockwise to lock. To unlock the reels, turn the Reel Hold-down handle counterclockwise.

26. MINUTES/SECONDS TAPE COUNTER

This counter provides an indication in minutes and seconds of the duration (time elapsed) from the start of tape movement in the RECORD or PLAY mode. Specific time or occurrence of events in the program material, during the record or play operations, can be noted or logged with reference to the counter reading; then used to relocate these events in subsequent playback of the same tape. This feature is especially useful when preparing for an editing operation.

The reset button returns the counter to zero and can be depressed at any time.

27. TENSION CONTROL

This control is used during the PLAY mode to adjust the tape holdback tension.

Adjust for minimum pulling or hooking at the top of the monitor picture.

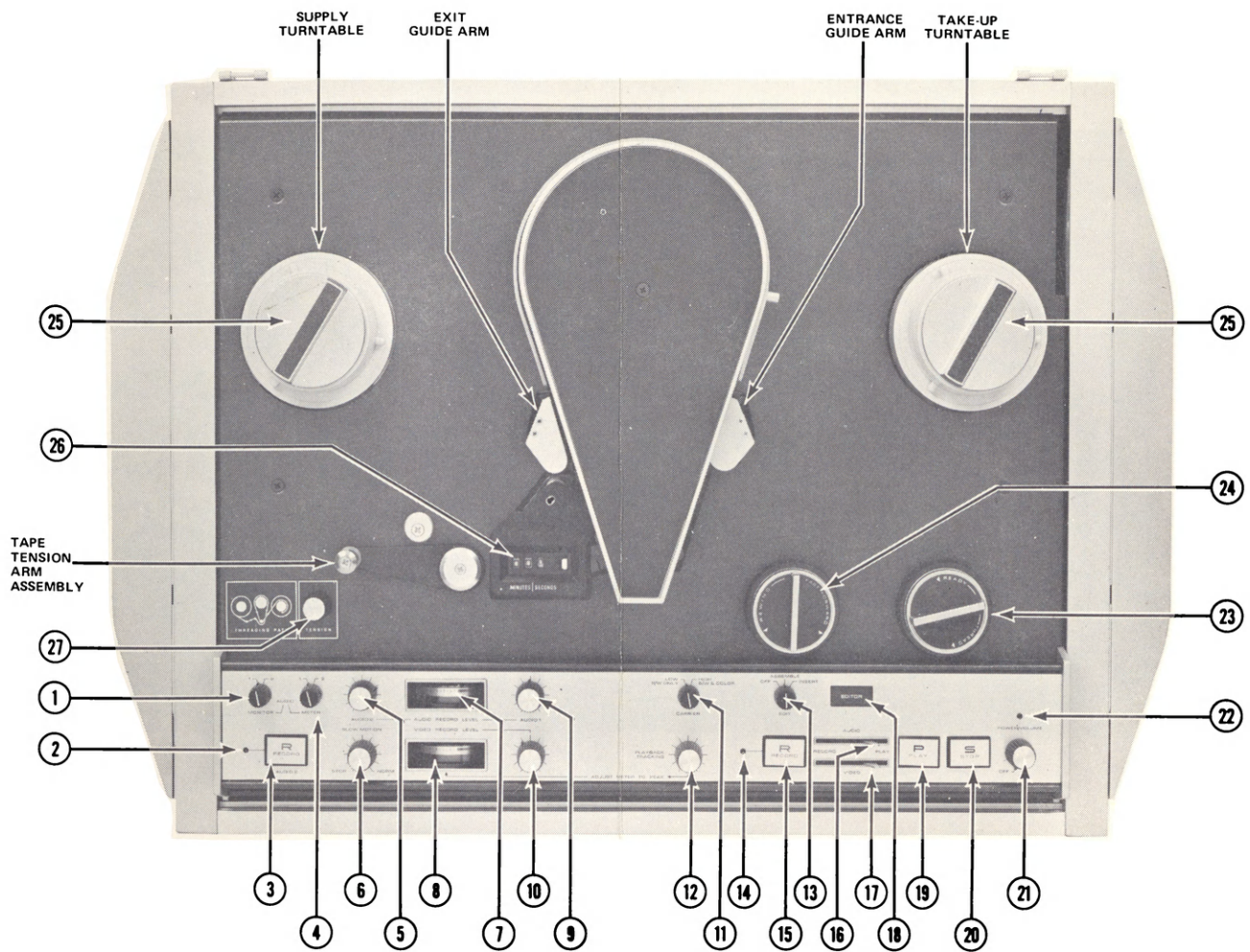


Figure 1 Front Control Panel and Tape Path Components

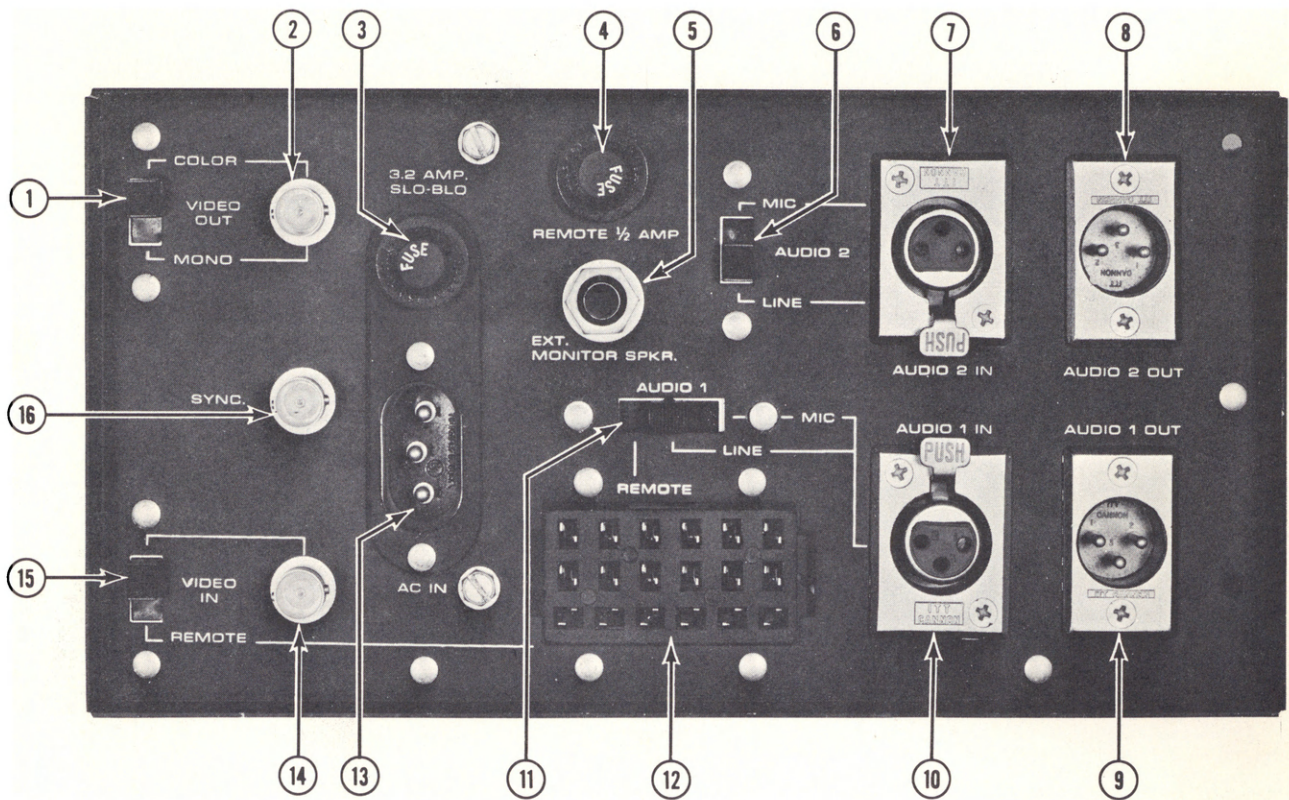


Figure 2 Rear Connector Panel

REAR CONNECTOR PANEL

(Reference figure 2)

1. VIDEO OUTPUT SELECTOR

This switch selects either the direct video output of the recorder or the corrected video output. The corrected video output is processed by an internal color correction system.

Whenever a color playback is desired, the selector should be set to the COLOR position. For maximum picture detail during a monochrome playback, the selector should be set to the MONO position.

2. VIDEO OUT RECEPTACLE

Provides a means of connecting to the recorders video output. The composite video output level will be 1.0V P-P $\pm 10\%$. The monitor or modified TV receiver receiving the composite video signal must be terminated with 75 ohms.

3. FUSEHOLDER

Contains a 3.2 amp. fuse for protection against overloads and short circuits. Replace this fuse only with one of comparable rating.

4. FUSEHOLDER, REMOTE

Contains a $\frac{1}{2}$ amp. fuse for protection against overloads or short circuits occurring in a camera connected to the recorders REMOTE receptacle (item 12).

Replace this fuse only with one of comparable rating.

5. EXT. MONITOR SPKR RECEPTACLE

A standard single-circuit phone receptacle, which is used for connecting an 8 ohm speaker for remote monitoring of the audio output. Either audio 1 or audio 2 output can be monitored, depending on the setting of the Audio Monitor Selector on the front panel. When a speaker phone plug is inserted in this receptacle, the internal speaker of the recorder is disconnected.

A headphone, with an 8 ohm impedance (or greater), can be connected in place of a speaker for monitoring, which would also disconnect the recorders internal speaker. Volume for either a headphone or speaker is adjustable with the Power/Volume control on the front panel.

6. AUDIO 2 MIC/LINE INPUT SELECTOR

This slide switch is used to select between two audio inputs; they are as follows:

MIC position — Allows a microphone, wired for a balanced output (200 ohm impedance nominal), to be connected to the Audio 2 In receptacle (item 7).

LINE position — Allows a balanced audio line input signal to be connected to the Audio 2 In receptacle (item 7).

7. AUDIO 2 IN RECEPTACLE

This receptacle provides means for connecting a balanced (200 ohm impedance) microphone, or balanced bridging (100k ohm impedance) line input to the recorder.

The Audio 2 Mic/Line Input Selector (item 6) must be set for the appropriate input, MIC or LINE.

8. AUDIO 2 OUT RECEPTACLE

Provides a 600 ohm impedance balanced output for audio 2 playback, or E-E monitoring (during RECORD-STANDBY mode).

The output should be connected to an external power amplifier/speaker system through a balanced two conductor shielded cable. The audio output from this receptacle is NOT adjustable with the Power/Volume control on the front panel.

9. AUDIO 1 OUT RECEPTACLE

Same as item #8, except the audio 1 signal will be present as an output.

10. AUDIO 1 IN RECEPTACLE

Same as item #7, except the Audio 1 Mic/Line/Remote Input Selector (item 11) must be set for the appropriate input, MIC or LINE.

11. AUDIO 1 MIC/LINE/REMOTE INPUT SELECTOR

This is a three (3) position slide switch that selects between three audio inputs; they are as follows:

REMOTE (Left Position) — This position will allow unbalanced (100k ohm impedance) audio inputs to be coupled to the recorder (through the Remote receptacle, item 12).

LINE (Center Position) — Allows a balanced audio line input signal to be connected to the Audio 1 In receptacle (item 10).

MIC (Right Position) — Allows a microphone, wired for a balanced output (200 ohm impedance), to be connected to the Audio 1 In receptacle (item 10).

12. REMOTE RECEPTACLE

This is an 18 pin Jones receptacle, which is used for remote connections to an Ampex model CC450 viewfinder camera, or an optional R.F. Modulator adapter, or a color dub adapter cable.

In order to connect the camera to the VPR5800 recorder, an optional adapter cable assembly (Ampex P/N 7076719-01) must be connected between the camera input receptacle, and the VPR5800 Remote receptacle.

When it is desired to control the recorder from the camera (remote STOP and RECORD mode), the Video In selector (item 15) must be set to the REMOTE position.

REAR CONNECTOR PANEL

(Reference figure 2)

1. VIDEO OUTPUT SELECTOR

This switch selects either the direct video output of the recorder or the corrected video output. The corrected video output is processed by an internal color correction system.

Whenever a color playback is desired, the selector should be set to the COLOR position. For maximum picture detail during a monochrome playback, the selector should be set to the MONO position.

2. VIDEO OUT RECEPTACLE

Provides a means of connecting to the recorders video output. The composite video output level will be 1.0V P-P $\pm 10\%$. The monitor or modified TV receiver receiving the composite video signal must be terminated with 75 ohms.

3. FUSEHOLDER

Contains a 3.2 amp. fuse for protection against overloads and short circuits. Replace this fuse only with one of comparable rating.

4. FUSEHOLDER, REMOTE

Contains a $\frac{1}{2}$ amp. fuse for protection against overloads or short circuits occurring in a camera connected to the recorders REMOTE receptacle (item 12).

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A standard single-circuit phone receptacle, which is used for connecting an 8 ohm speaker for remote monitoring of the audio output. Either audio 1 or audio 2 output can be monitored, depending on the setting of the Audio Monitor Selector on the front panel. When a speaker phone plug is inserted in this receptacle, the internal speaker of the recorder is disconnected.

A headphone, with an 8 ohm impedance (or greater), can be connected in place of a speaker for monitoring, which would also disconnect the recorders internal speaker. Volume for either a headphone or speaker is adjustable with the Power/Volume control on the front panel.

6. AUDIO 2 MIC/LINE INPUT SELECTOR

This slide switch is used to select between two audio inputs; they are as follows:

MIC position — Allows a microphone, wired for a balanced output (200 ohm impedance nominal), to be connected to the Audio 2 In receptacle (item 7).

LINE position — Allows a balanced audio line input signal to be connected to the Audio 2 In receptacle (item 7).

7. AUDIO 2 IN RECEPTACLE

This receptacle provides means for connecting a balanced (200 ohm impedance) microphone, or balanced bridging (100k ohm impedance) line input to the recorder.

The Audio 2 Mic/Line Input Selector (item 6) must be set for the appropriate input, MIC or LINE.

8. AUDIO 2 OUT RECEPTACLE

Provides a 600 ohm impedance balanced output for audio 2 playback, or E-E monitoring (during RECORD-STANDBY mode).

The output should be connected to an external power amplifier/speaker system through a balanced two conductor shielded cable. The audio output from this receptacle is NOT adjustable with the Power/Volume control on the front panel.

9. AUDIO 1 OUT RECEPTACLE

Same as item #8, except the audio 1 signal will be present as an output.

10. AUDIO 1 IN RECEPTACLE

Same as item #7, except the Audio 1 Mic/Line/Remote Input Selector (item 11) must be set for the appropriate input, MIC or LINE.

11. AUDIO 1 MIC/LINE/REMOTE INPUT SELECTOR

This is a three (3) position slide switch that selects between three audio inputs; they are as follows:

REMOTE (Left Position) — This position will allow unbalanced (100k ohm impedance) audio inputs to be coupled to the recorder (through the Remote receptacle, item 12).

LINE (Center Position) — Allows a balanced audio line input signal to be connected to the Audio 1 In receptacle (item 10).

MIC (Right Position) — Allows a microphone, wired for a balanced output (200 ohm impedance), to be connected to the Audio 1 In receptacle (item 10).

12. REMOTE RECEPTACLE

This is an 18 pin Jones receptacle, which is used for remote connections to an Ampex model CC450 viewfinder camera, or an optional R.F. Modulator adapter, or a color dub adapter cable.

In order to connect the camera to the VPR5800 recorder, an optional adapter cable assembly (Ampex P/N 7076719-01) must be connected between the camera input receptacle, and the VPR5800 Remote receptacle.

When it is desired to control the recorder from the camera (remote STOP and RECORD mode), the Video In selector (item 15) must be set to the REMOTE position.

Figure 3 illustrates the inputs and outputs to and from the receptacle.

The Audio In pins (pins 1 and 2) are not used with the CC450 camera; however, they can be used with optional plug-in accessories. When one of these accessories has an audio signal, and is connected to the Remote receptacle, the Audio 1 Mic/Line/Remote Input selector (item 11) must be set to the REMOTE position.

13. AC IN RECEPTACLE

This is a three conductor grounding receptacle. Connect to a 117 vac, 60 Hz source with the power cable supplied.

14. VIDEO IN RECEPTACLE

The video source to be recorded is connected to this receptacle, which could be a video tape player, video camera, video control center output, or modified TV receiver.

The signal level required to produce a 100% record level is $1.0 \pm 0.5V$ P-P composite video. The Video In selector (item 15) must be in the VIDEO IN (up) position in order to use this receptacle.

15. VIDEO IN SELECTOR

This switch is set for the source of video to be recorded.

The REMOTE position (down) is used when a CC450 camera is connected to the Remote receptacle (item 12) and it is desired to control the recorders Record and Stop functions from the camera.

The VIDEO IN position (up) is used when the source of video to be recorded is connected to the Video In receptacle (item 14).

16. SYNC (IN) RECEPTACLE

Provides a means of connecting the recorder to an external sync source.

When an external sync source is used for a recording, it must be synchronized with the video input. The external sync will override the sync derived from the video input signal.

When the VPR5800 is connected (during the PLAY mode) to a switcher/fader unit as a switchable input, a composite sync signal should be connected to this receptacle. The VPR5800 output would then be synchronized with other units in the system, and no vertical roll will occur as with a non-synchronous input.

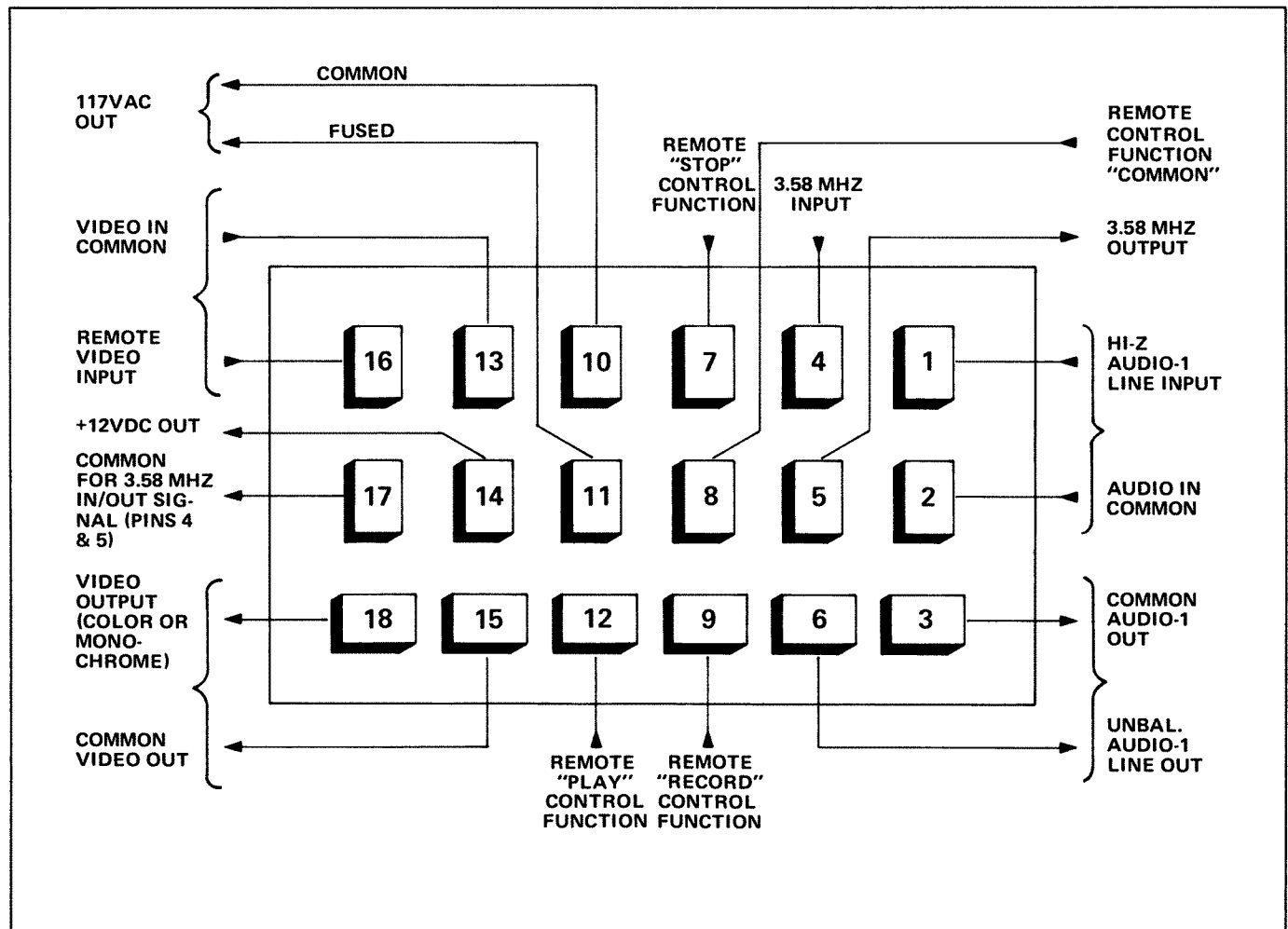


Figure 3 Remote Receptacle Inputs and Outputs (Front View)

-NOTES-

INSTALLATION

PREPARATION FOR USE

The VPR5800 video production reproducer is fully portable and can be placed on any flat, vibration-free surface for satisfactory operation. Sufficient space should be available both at the base of the unit, to permit a flow of cooling air, and at the rear of the unit to permit electrical connection to the rear connector panel.

The VPR5800 unit should not be located in an area containing corrosive fumes, such as found near storage batteries. Avoid dusty areas, as excessive dust may cause video dropouts and excessive head wear. Avoid areas with strong magnetic fields that can cause degradation of recorded material and magnetization of the head assemblies and other tape path components.

Place the unit in the desired operating position (horizontal or vertical) and connect the power cable to the recorder and a 117 VAC, 60Hz source.

The hinged cover should be kept closed to provide dust-free and quieter operation. However, the cover can be removed if required.

In the upper right hand corner is a lid-stay, which supports the cover in the open position. The lid-stay slides in a slotted bracket that has a key hole. In order to find the key hole, it will be necessary to raise the cover approximately halfway; then press the lid-stay to the left as the cover is moved up and down an inch or so until the lid-stay "pops" out of the key hole. When the lid-stay is free of the bracket, lower the cover toward the rear; then lift up. The cover is remounted in the reverse order of removal.

Refer to the Routine Preventive Maintenance section for instructions on cleaning the plexiglass viewing window.

MULTI-MONITOR CONNECTIONS

(Reference figure 4)

Up to ten (10) monitors or modified TV receiver/monitors (color or monochrome) can be connected to the VIDEO OUT receptacle of the VPR5800 without degradation of picture quality.

When making an installation of two or more monitors, terminate the last monitor on the line by using the built-in 75 ohm termination of the monitor, or by connecting a 75 ohm resistor across the line at the last monitor. Do not terminate any of the other monitors. Up to 500 feet of distribution lines can be used without significant losses.

Video connections should be made with a good quality 75 ohm coaxial cable and BNC-type connectors to mate with the BNC receptacles on the VPR5800 rear panel.

AUDIO LINE OUTPUT CONNECTIONS

A two conductor shielded cable should be used to connect the VPR5800 audio line outputs (from the Audio 1 Out and Audio 2 Out receptacles) to an amplifier/speaker system equipped with balanced inputs. The VPR5800 is wired for use with balanced lines.

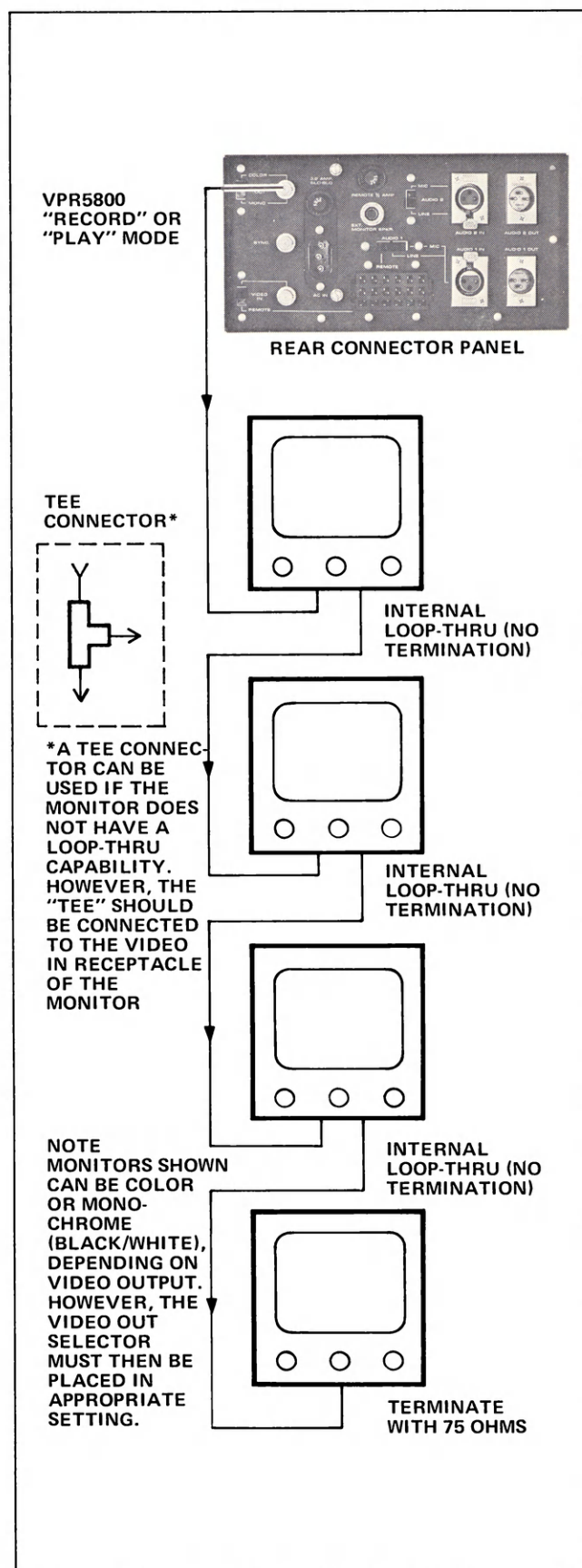


Figure 4 Multi-Monitor Connections

Reference figure 5; it illustrates the internal wiring of the Audio 1 Out receptacle (on the rear panel of the VPR5800), a balanced interconnect cable, and an amplifier balanced input receptacle. The amplifier may have a balanced input (point "A", figure 5) or an unbalanced input (point "B", figure 5). Therefore the internal wiring of a balanced and unbalanced input is illustrated with the amplifier input receptacle shown.

In the event a phone jack, BNC receptacle, etc., is used as the audio input, it will be necessary to jumper the number 1 and 2 leads of the interconnect cable (at the amplifier end only) and use a corresponding connector to mate with the receptacle on the amplifier panel.

HEADPHONE MONITORING

Connect a set of headphones, with an impedance of 8 ohms or greater, to the EXT. MONITOR SPKR receptacle on the rear connector panel. The internal speaker will then be disconnected. Volume is adjusted with the POWER/VOLUME control on the front control panel.

EXTERNAL SPEAKER CONNECTION

Connect an 8 ohm speaker to the EXT. MONITOR SPKR receptacle, on the rear connector panel, for remote monitoring. The internal speaker will then be disconnected. Volume is adjusted with the POWER/VOLUME control on the front control panel.

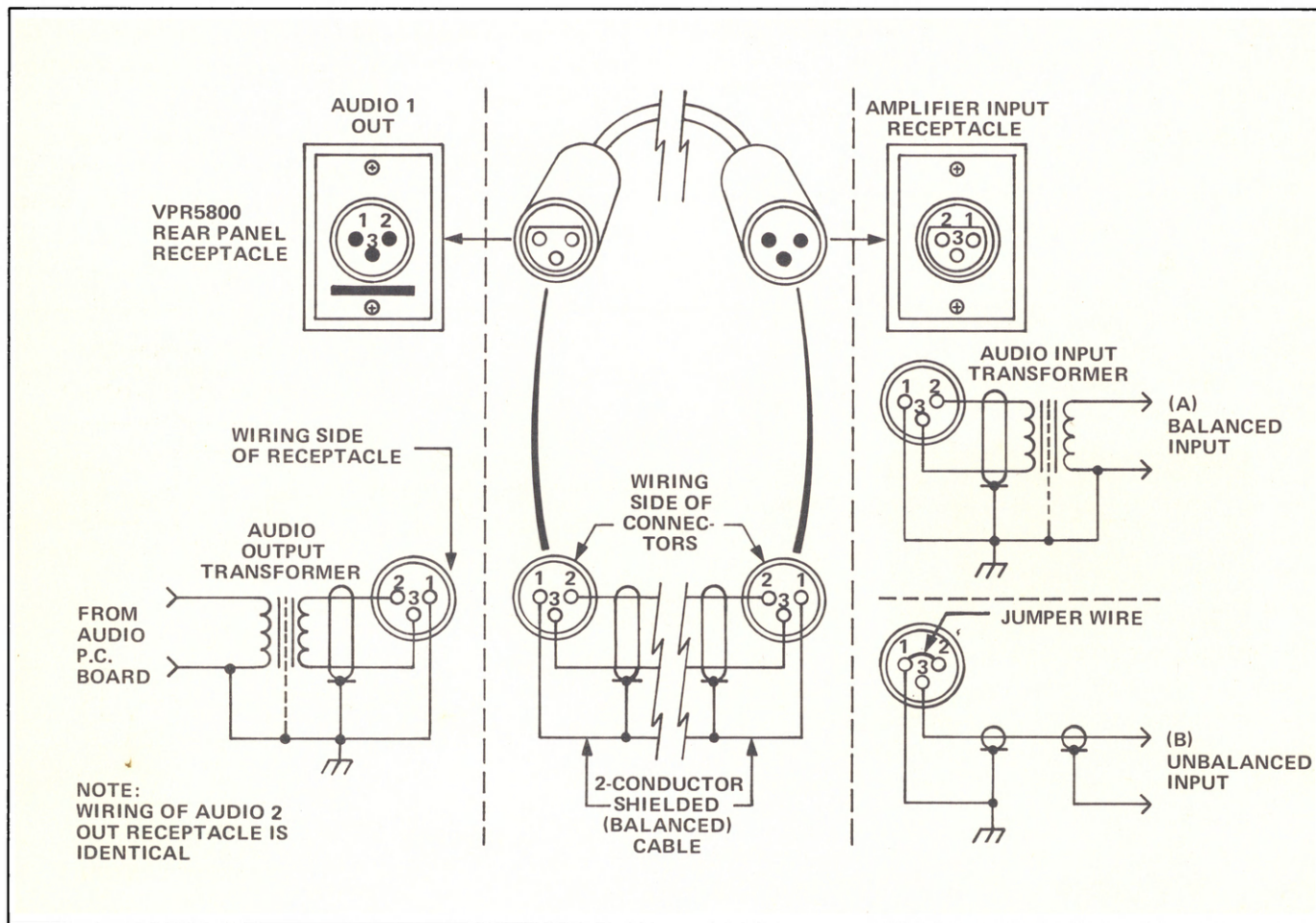


Figure 5 Internal Wiring of VPR5800 Audio 1 Out Receptacle, Balanced Interconnect Cable and Amplifier Input (Balanced and Unbalanced)

OPERATION

GENERAL

Before proceeding with the operation of the tape recorder, it is important that the operator thoroughly understands the function of all the controls, indicators, and receptacles. Descriptions of all controls, indicators and receptacles are given on pages 5 through 9.

PRELIMINARY SETUP INSTRUCTIONS

1. Connect the desired number of monitors or modified TV receivers to the VPR5800 as shown in figure 4. If only one monitor/receiver is used, terminate it with 75 ohms.
2. Connect an amplifier/speaker system to the Audio 1 Out receptacle and one to the Audio 2 Out receptacle for remote playback or E-E monitoring of the two audio channels if desired. Reference figure 6 for connections using balanced cables.

If local playback and E-E monitoring of the two audio channels will suffice, use the internal speaker. However, this requires using the Audio Monitor selector to select between the two audio channels for monitoring.

An external speaker or headphones can be used in place of the internal speaker. Connect one or the other to the Ext. Remote Spkr. receptacle on the rear panel.

3. Before proceeding with the playback or recording of a tape, see that the tape is threaded correctly and the tape guide arms are closed.

4. In the following recording and playback procedures, the term "video source" is defined as follows: A composite video signal from the line output of a video tape recorder/player, video camera, video control center/switcher fader or modified TV receiver.

In addition, the term "audio source" is defined as follows: A preamplified audio signal from an audio tape deck, line output of a video tape recorder/player or low impedance microphone.

5. When a step requires the Playback Tracking control to be placed in the "set" position, be sure to rotate the control fully clockwise until it clicks into the detent position of the control.

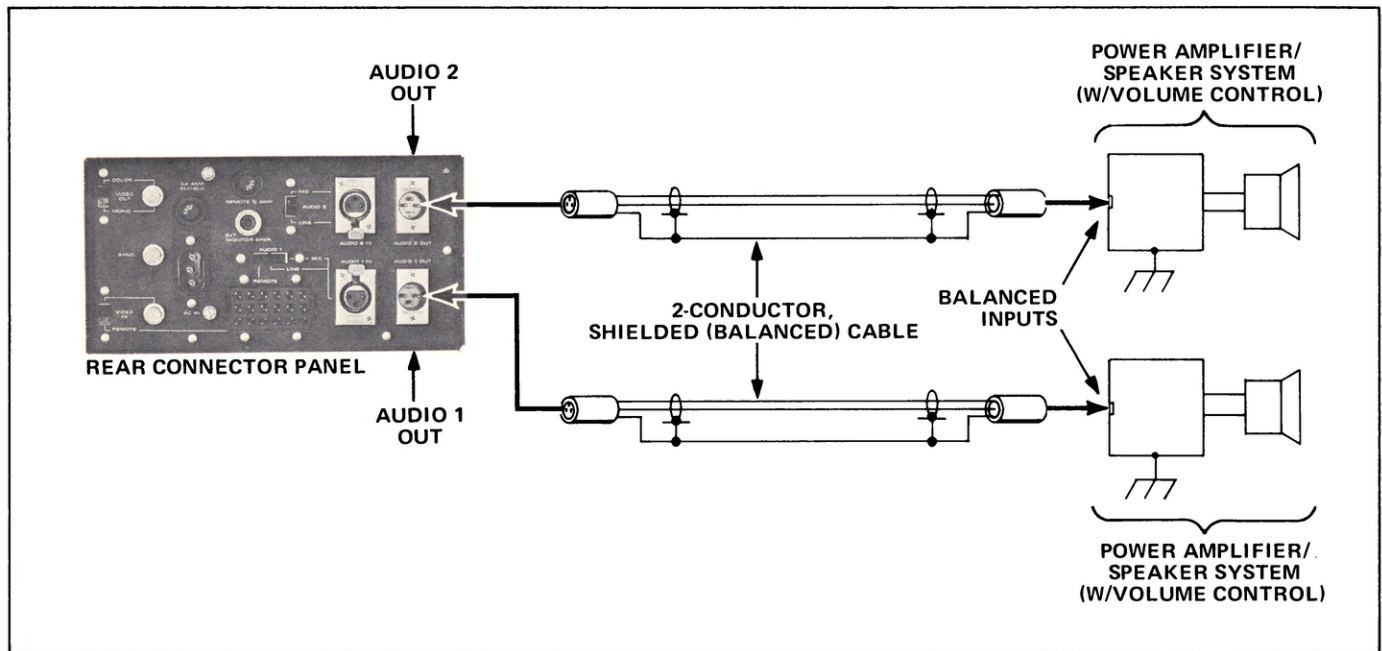


Figure 6 Connections Required for Audio 1 and Audio 2 Remote Playback and E-E Monitoring

TAPE THREADING

(Reference figure 7)

To thread the tape, proceed as follows:

1. Rotate the Ready Thread control knob clockwise to the **THREAD** position. The knob turns hard at first because the first few degrees of rotation unlock the mechanism. The entrance and exit guide arms will move out from beneath the drum cover with this action.
2. Place the reel of tape on the supply turntable. Place the empty take-up reel on the take-up turntable. Be sure that the grooves in the reel hubs mate with the lugs on their respective turntables; then turn the Reel Hold-down handles clockwise to lock.
3. Unwind about 3 to 4 feet of tape.
4. Thread the tape to the front of the tape tension arm assembly; then to the rear of the minutes/seconds tape counter.
5. Route the tape past the right side of the tape counter and to the left side of the rubber-sleeved split capstan. Place the tape to the inside of the entrance guide arm and counterclockwise around the upper rotating drum. Place the tape to the inside of the exit guide arm, and again to the left of the rubber-sleeved capstan. The two layers of tape on the rubber-sleeved capstan should not overlap.
6. The tape is then wrapped around the take-up reel hub in a clockwise direction with the oxide surface facing outward.
7. Manually rotate the reels to allow a good tape wrap around the take-up reel; however, maintain a small amount of slack around the drum.
8. Rotate the Ready Thread control knob counterclockwise to lock the entrance and exit guide arms in the **READY** position.

APPLICATION OF AC POWER

1. If the AC power has not been already applied, the recorder can now be connected to a 117VAC source utilizing the power cable provided. To apply power, turn the **POWER/VOLUME** control clockwise until it clicks. The video head drum should begin rotating. If the drum has difficulty in reaching synchronous speed, the tape may be wrapped too tightly around the drum. If so, manually rotate the reels to provide a small amount of slack around the drum.

CAUTION

The torque of the drum motor is substantial and will not stall in any normal operating mode. The only condition that will likely stall the drum, may occur if the recorder is threaded with power off and the **THREAD/READY** knob is placed in the **READY** position without first turning on the power and allowing the rotating head drum to come up to speed. Under these circumstances, the tape may cinch around the drum as the **THREAD/READY** knob is actuated, thereby preventing the drum from rotating when power is applied. The recorder may be threaded with either power on or off; however, it is strongly urged that the power be turned on and time allowed for the drum to come up to speed before the **THREAD/READY** knob is activated. In this manner, the one condition that may stall the drum is avoided. The VPR5800 senses drum stall and causes drive power to be removed from the drum motor. To reset the Drum Stall Sensor, turn the AC power off for several seconds; then turn back on.

REWINDING THE TAPE

(Tape Guide Arms must be closed for operation)

1. The tape can be rewound at any time while the power is **ON** simply by turning the Rewind-Fast Forward knob counterclockwise until it locks into position. However, immediately after rotating the Rewind/Fast Forward control knob from the Rewind position back to its center (neutral) position, momentarily depress the Play button; then the Stop button. This is to ensure that the tape does not remain wrapped tight around the rotating drum, which could allow the video heads to unnecessarily wear oxide off the tape.

An alternate method would be to simply rotate the take-up reel **CCW** until the tape loosens around the rotating drum.

NOTE

When going from a **REWIND** to **PLAY** mode, allow several seconds for the tape to stop; otherwise the capstan servo may lock in at half speed. If the half speed condition (slow play) should occur, depress the Stop button; then the Play button to resume normal playback operation. A dirty capstan contributes to this potential condition.

2. To go into the **FAST-FORWARD** mode, turn the Rewind/Fast Forward control knob clockwise until it locks.
3. To stop the tape movement when in Rewind or Fast Forward, turn the Rewind/Fast Forward knob to its center (neutral) position. The Stop button is inoperative for stopping tape motion during the Rewind or Fast Forward modes.

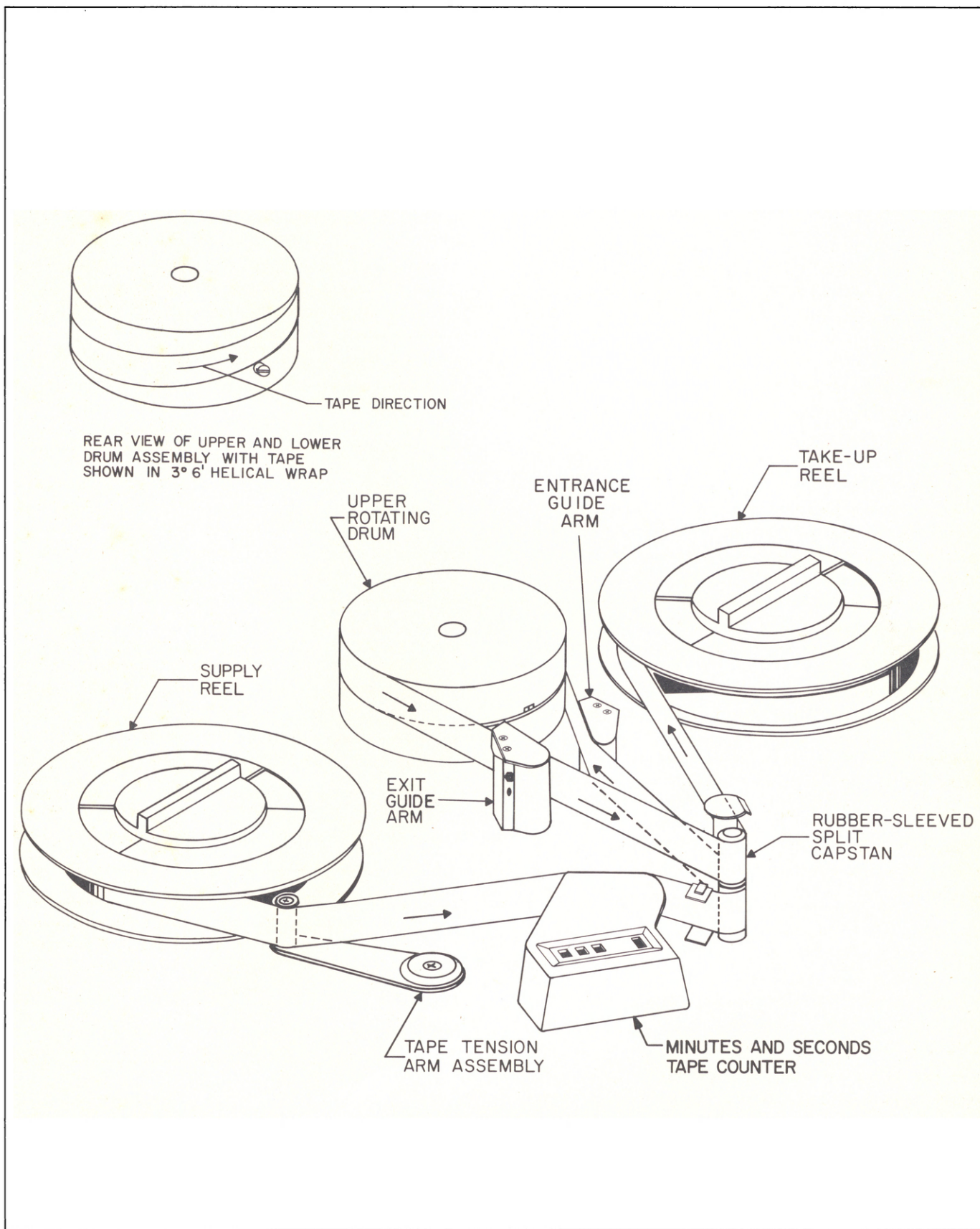


Figure 7 Threading Tape – Front View

PLAYBACK PROCEDURES

1. Connect a color or monochrome monitor(s) to the Video Out receptacle as required (Reference figure 4 for connections); set the Video Output selector (on rear panel) to the appropriate setting (COLOR or MONO).
2. Connect an amplifier/speaker system (two, if both audio channels are used) to the Audio 1 Out and/or Audio 2 Out receptacles if remote playback reproduction or E-E monitoring of the two audio channels is desired (Reference figure 6 for connections).
3. Be sure the Video and Audio Record/Play Levers (items 1 and 2, figure 8) are in the right-hand (PLAY) position.
4. Set the Carrier selector (item 3, figure 8) to the High or Low position in accordance with item 11, page 6, "CARRIER SELECTOR".
5. Set the Audio Monitor selector (item 4, figure 8) to the position (1 or 2) that will correspond to the audio channel to be monitored during playback. Adjust the volume of the playback with the Power/Volume control (item 5, figure 8) once playback has started.
6. Set the Audio Meter selector (item 6, figure 8) to the position (1 or 2) of the audio channel playing to monitor the audio level on the Audio Record Level meter (item 7, figure 8), if desired.

7. Depress the Play button (item 8, figure 8) to begin tape movement and the PLAY mode.

NOTE

Step 8 applies only to tapes that were NOT recorded on the VPR5800 that is playing them back.

For tapes that were recorded on the VPR5800, rotate the Playback Tracking control (item 9, figure 8) clockwise to the "SET" position.

8. Adjust the Playback Tracking control (item 9, figure 8) for a maximum indication on the Video Record Level meter (item 10, figure 8).
9. Adjust the Tension control (item 11, figure 8) for minimum bending or hooking at the top of the picture on the monitor.
10. To terminate the PLAY mode, depress the Stop button (item 12, figure 8). To begin the PLAY mode again, simply depress the Play button (item 8, figure 8). However, it may be necessary to readjust the Tension control as described in step 9. This is due to the Tape Tension Arm assembly having been disengaged when the Stop button was depressed.

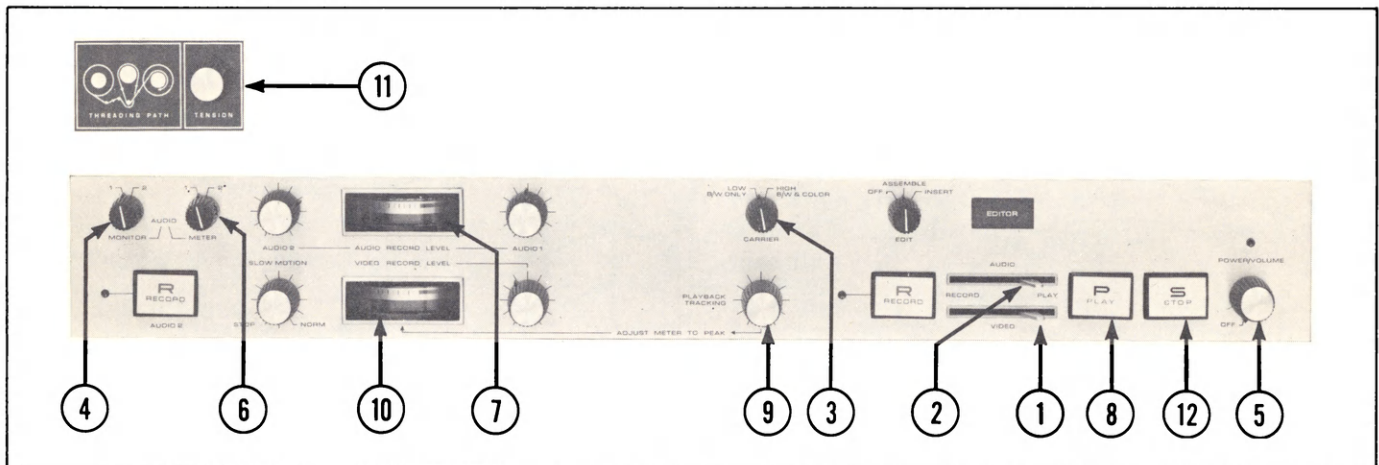


Figure 8 Playback Operation

RECORDING VIDEO FROM AN AMPEX CC450 VIEWFINDER VIDEO CAMERA

1. Connect the camera cable connector to the Remote receptacle on the VPR5800 rear panel.
2. Set the Video In selector, on the rear panel, to the REMOTE position.
3. Refer to the CC450 camera operation manual for instructions on setting up the camera.
4. Connect a video monitor, or modified TV receiver, to the Video Out receptacle; set the Video Out selector to the MONO position.
5. Place the Carrier selector (item 1, figure 9) in the position that will correspond to the carrier frequency of the unit that is to be used to play back the tape.

The following is a guide to aid in that choice:

- a. For monochrome tapes to be played back on low carrier units, such as the VR5000, 6000 or 7000 series, use the LOW carrier position.
 - b. For monochrome tapes to be played back on high (or high/low) carrier units, such as the VPR4500, VR7500, VR7800 and VPR7900, use the HIGH carrier position.
6. Place the Video Record/Play Lever (item 2, figure 9) in the left-hand (RECORD) position.
 7. Adjust the Video Record Level control (item 3, figure 9) for a 100% indication (during peak white scenes) on the Video Record Level meter (item 4, figure 9).
 8. Rotate the Playback Tracking control (item 5, figure 9) to the SET position. DO NOT rotate or attempt to adjust it

once the RECORD mode has been initiated and tape is moving.

NOTE

Step 9 is included if it is desired to record audio while recording the video from the camera.

9. The CC450 camera does not have facilities for audio connections. Therefore it will be necessary to connect a microphone (or a line output audio source) to the Audio 1 In receptacle on the VPR5800 rear panel.

The following procedure is outlined for recording the audio 1 channel:

- a. Place the Audio 1 Mic/Line/Remote Input selector (on rear panel) in the appropriate setting, MIC or LINE.
- b. Set the Audio Monitor and Meter selectors (item 7 and 8, figure 9) to their "1" position.
- c. Place the Audio Record/Play Lever (item 9, figure 9) in the left-hand (RECORD) position.
- d. Adjust the Audio 1 Record Level control (item 10, figure 9) for a 100% indication (during peak sound levels)

on the Audio Record Level meter (item 11, figure 9). The Power/Volume control (item 12, figure 9) can be turned up to monitor the audio 1 input from the internal speaker while adjusting; and during the subsequent recording.

10. At this point the actual RECORD mode and tape movement can be initiated by depressing the Main Record button (item 6, figure 9) on the VPR5800 (for local RECORD control); or depress the Record button on the control panel of the CC450 camera (for remote RECORD control). The red Record Indicator (item 13, figure 9) will light at this point.

11. To terminate the recording, depress the Stop button (item 14, figure 9) on the VPR5800 front panel; or depress the Stop button on the control panel of the CC450 camera. To begin the RECORD mode again, repeat step 10.

NOTE

When a CC450 camera is connected to the Remote receptacle, the PLAY mode can only be activated from the VPR5800 control panel.

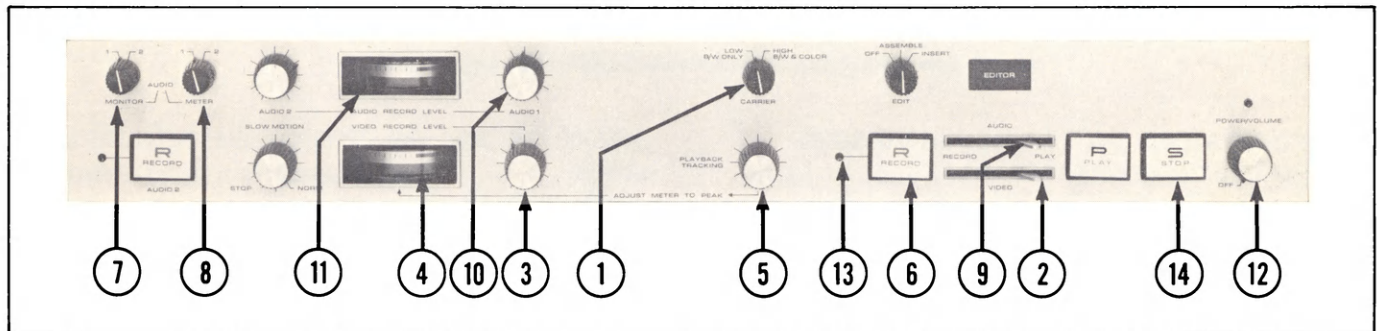


Figure 9 Recording Video (and Audio) From CC450 Camera Operation

RECORDING VIDEO, AUDIO 1 AND AUDIO 2 SIMULTANEOUSLY

1. Connect the video source to be recorded to the Video In receptacle; set the Video In selector to the appropriate setting.
2. Connect the audio 1 source to be recorded to the Audio 1 In receptacle; set the Audio 1 Mic/Line/Remote Input selector to the appropriate setting.
3. Connect the audio 2 source to be recorded to the Audio 2 In receptacle; set the Audio 2 Mic/Line Input selector to the appropriate setting.
4. Place the Carrier selector (item 1, figure 10) in the position that will correspond to the carrier frequency of the unit that will be playing back the tape.

The following is a guide to aid in that choice:

- a. For monochrome tapes to be played back on low carrier units, such as the VR5000, 6000 or 7000 series, use the LOW carrier position.
- b. For color or monochrome tapes to be played back on high (or high/low) carrier units, such as the VPR4500,

VR7500, VR7800 and VPR7900, use the HIGH carrier position.

5. Place the Video and Audio Record/Play Levers (item 2 and 3, figure 10) in the left-hand (RECORD) position.
6. Adjust the Video Record Level control (item 4, figure 10) for a 100% indication (during peak white scenes) on the Video Record Level meter (item 5, figure 10).
7. Set the Audio Monitor and Meter selectors (item 6 and 7, figure 10) to the "1" position.
8. Adjust the Audio 1 Record Level control (item 8, figure 10) for a 100% indication (during peak sound levels) on the Audio Record Level meter (item 9, figure 10). The Power/Volume control (item 10, figure 10) can be turned up to monitor the audio 1 input from the internal speaker if desired.
9. Set the Audio Monitor and Meter selectors (item 6 and 7, figure 10) to the "2" position.
10. Momentarily depress the Audio 2 Record button (item 11, figure 10). Note that the Audio 2 Record Indicator (item 12, figure 10) lights, which indicates that

the audio 2 channel circuitry is activated and in the RECORD STANDBY mode.

11. Adjust the Audio 2 Record Level control (item 13, figure 10) for a 100% indication (during peak sound levels) on the Audio Record Level meter (item 9, figure 10). The Power/Volume control (item 10, figure 10) can be turned up to monitor the audio 2 input from the internal speaker if desired.

12. Rotate the Playback Tracking control (item 14, figure 10) to the "SET" position. DO NOT rotate or

attempt to adjust it once the Main Record button has been depressed and tape is moving.

13. To begin recording, depress, and hold down the Audio 2 Record button (item 11, figure 10) while simultaneously depressing the Main Record button (item 15, figure 10). The red Record Indicator (item 16, figure 10) will light at this point and tape movement begins.

14. To terminate the recording, depress the Stop button (item 17, figure 10). To begin recording again, repeat step 13.

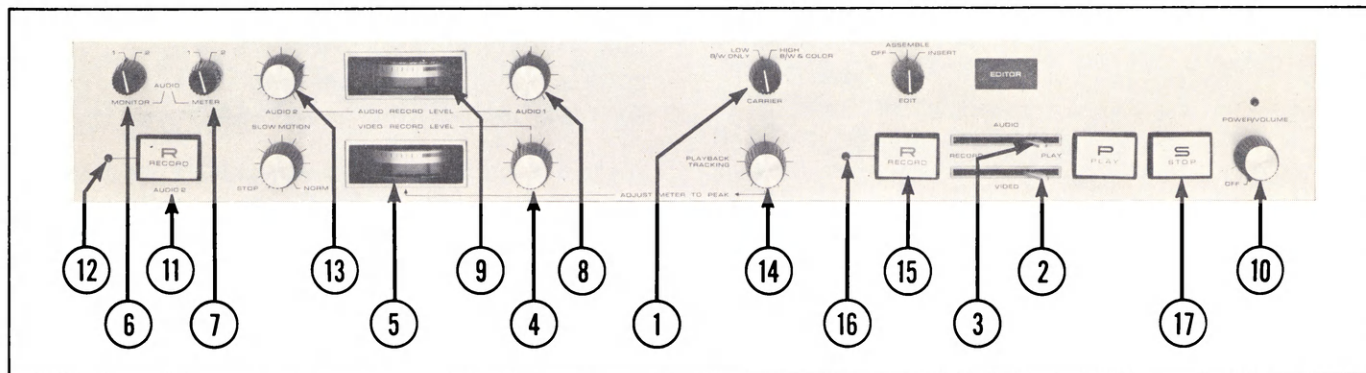


Figure 10 Recording Video, Audio 1 and Audio 2 Simultaneously Operation

RECORDING VIDEO ONLY (THROUGH VIDEO IN RECEPTACLE ON REAR PANEL)

1. Connect the video source to be recorded to the Video In receptacle; set the Video In selector to the appropriate setting.

2. Connect a color or monochrome monitor (or modified TV receiver) to the Video Out receptacle; set the Video Out selector to the appropriate setting.

3. Place the Carrier selector (item 1, figure 11) in the position that will correspond to the carrier frequency of the unit that will be playing back the tape.

The following is a guide to aid in that choice:

a. For monochrome tapes to be played back on low carrier units, such as the VR5000, 6000 or 7000 series, use the LOW carrier position.

b. For color or monochrome tapes to be played back on high (or high/low) carrier units, such as the VPR4500,

VR7500, VR7800 and VPR7900, use the HIGH carrier position.

4. Place the Video Record/Play Lever (item 2, figure 11) in the left-hand (RECORD) position. DO NOT move the Audio Record/Play Lever.

5. Adjust the Video Record Level control (item 3, figure 11) for a 100% indication (during peak white scenes) on the Video Record Level meter (item 4, figure 11).

6. Rotate the Playback Tracking control (item 5, figure 11) to the "SET" position. DO NOT rotate or attempt to adjust it once the Main Record button (item 6, figure 11) has been depressed and tape is moving.

7. Depress the Main Record button (item 6, figure 11) to begin tape movement and recording video. The red Record Indicator (item 7, figure 11) will light at this point.

8. To terminate the recording, depress the Stop button (item 8, figure 11). To begin recording again, simply depress the Main Record button (item 6, figure 11).

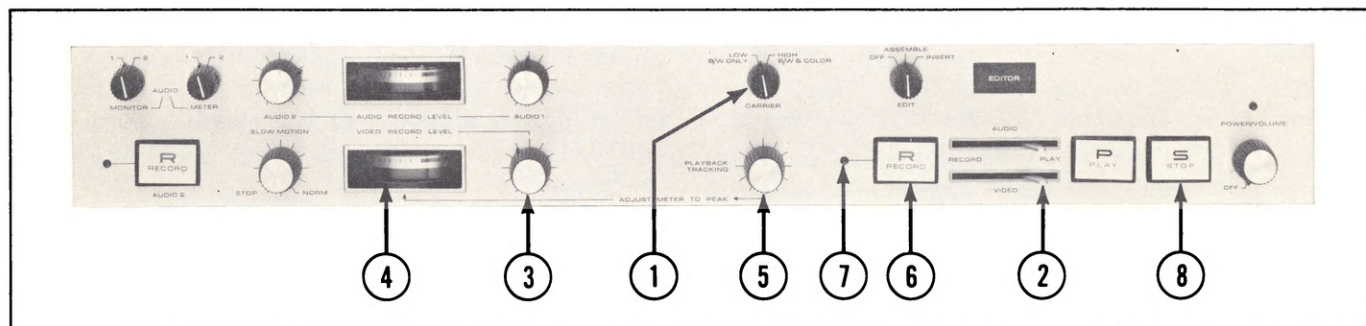


Figure 11 Recording Video Only Operation

RECORDING AUDIO 1 CHANNEL ONLY

1. Connect the audio source to be recorded to the Audio 1 In receptacle; set the Audio 1 Mic/Line/Remote Input selector to the appropriate setting.
2. Set the Audio Monitor and Meter selectors (item 1 and 2, figure 12) to the "1" position.
3. Place the Audio Record/Play Lever (item 3, figure 12) to the left-hand (RECORD) position. DO NOT move the Video Record/Play Lever.
4. Adjust the Audio 1 Record Level control (item 4,

figure 12) for a 100% indication (during peak sound levels) on the Audio Record Level meter (item 5, figure 12). The Power/Volume control (item 6, figure 12) can be turned up to monitor the audio 1 input from the internal speaker if desired.

5. Depress the Main Record button (item 7, figure 12) to start tape movement and recording audio 1. The red Record Indicator (item 8, figure 12) will light at this point.
6. To terminate the recording, depress the Stop button (item 9, figure 12). To begin recording again, simply depress the Main Record button (item 7, figure 12).

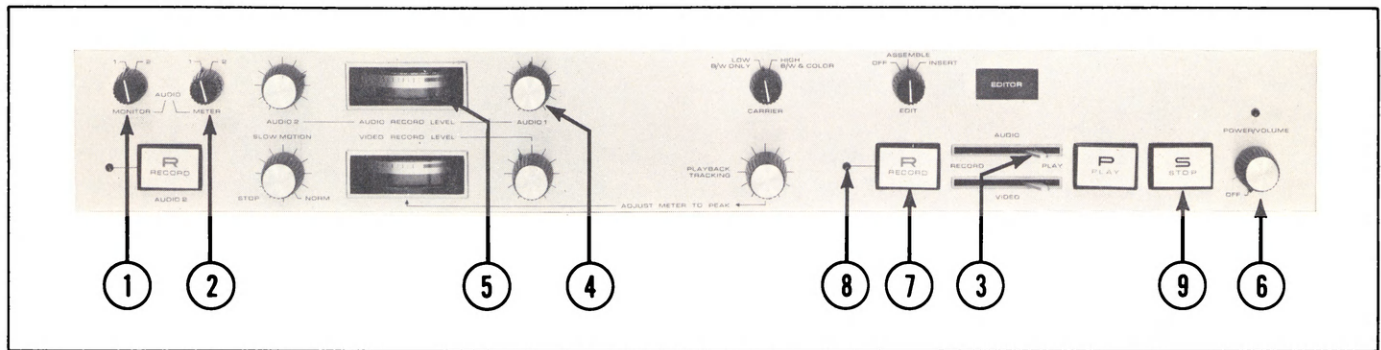


Figure 12 Recording Audio 1 Channel Only Operation

RECORD AUDIO 2 CHANNEL ONLY

1. Connect the audio source to be recorded to the Audio 2 In receptacle; set the Audio 2 Mic/Line Input selector to the appropriate setting.
2. Set the Audio Monitor and Meter selectors (item 1 and 2, figure 13) to the "2" position.
3. Ensure that the Audio and Video Record/Play levers (item 3 and 4, figure 13) are in the right-hand (PLAY) position.
4. Momentarily depress the Audio 2 Record button (item 5, figure 13). Note that the Audio 2 Record Indicator (item 6, figure 13) lights, which indicates that the audio 2 channel circuitry is activated and in the RECORD STANDBY mode.

5. Adjust the Audio 2 Record Level control (item 7, figure 13) for a 100% indication (during peak sound levels) on the Audio Record Level meter (item 8, figure 13). The Power/Volume control (item 9, figure 13) can be turned up to monitor the audio 2 input from the internal speaker if desired.

6. Depress, and hold down, the Audio 2 Record button (item 5, figure 13) while simultaneously depressing the Play button (item 10, figure 13) to begin tape movement and recording audio 2.

7. To terminate the recording, depress the Stop button (item 11, figure 13). This not only stops the tape movement, but de-activates the audio 2 channel from the RECORD STANDBY mode. Thus in order to begin recording again, it will be necessary to repeat step 6.

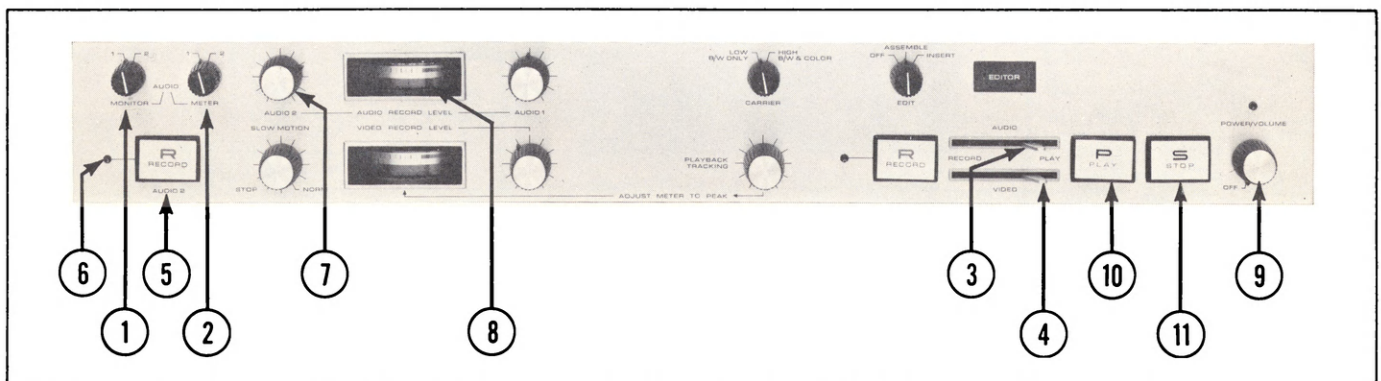


Figure 13 Recording Audio 2 Channel Only Operation

DUBBING BETWEEN TWO VPR5800 RECORDERS

Dubbing can be defined as "electronic duplication of video tapes" between a video tape recorder (VPR5800) in the RECORD mode, and a video tape recorder in the PLAY mode.

Figure 14 illustrates recommended connections for performing color/monochrome (or monochrome only) dubs. When it is desired to dub color, an adapter cable is required. This cable couples the video signal, audio 1 and a 3.58 MHz signal from the Remote receptacle of the PLAY unit to the Remote receptacle of the RECORD (dubbing) unit. In addition, the Remote/Video In selector, on the rear panel of the RECORD unit, must be placed in the REMOTE (down) position. The 3.58 MHz signal is required during the **color** dubbing operation to ensure proper video bandwidth.

A 15 foot color dub adapter cable is available as an optional accessory under Ampex P/N 7076727-01 (model no. CA727).

The color dub adapter cable can also be used for dubbing monochrome, except it is not required. All that is required for a monochrome dubbing operation is a coax cable (with BNC connectors) connected between the Video Out of the PLAY unit and Video In of the RECORD unit (reference point "C" in figure 14). A separate audio cable will also be required between the Audio Out of the PLAY unit and the Audio 1 In of the RECORD unit if audio is desired during the dub.

NOTE

Disconnect the color dub adapter cable when the dubbing operation is complete.

The composite sync generator shown in figure 14 (point "A") is optional. However, it is a desirable component for dubbing, in that both the PLAY and RECORD units would be locked to the same external sync source, thus providing maximum servo lock-in.

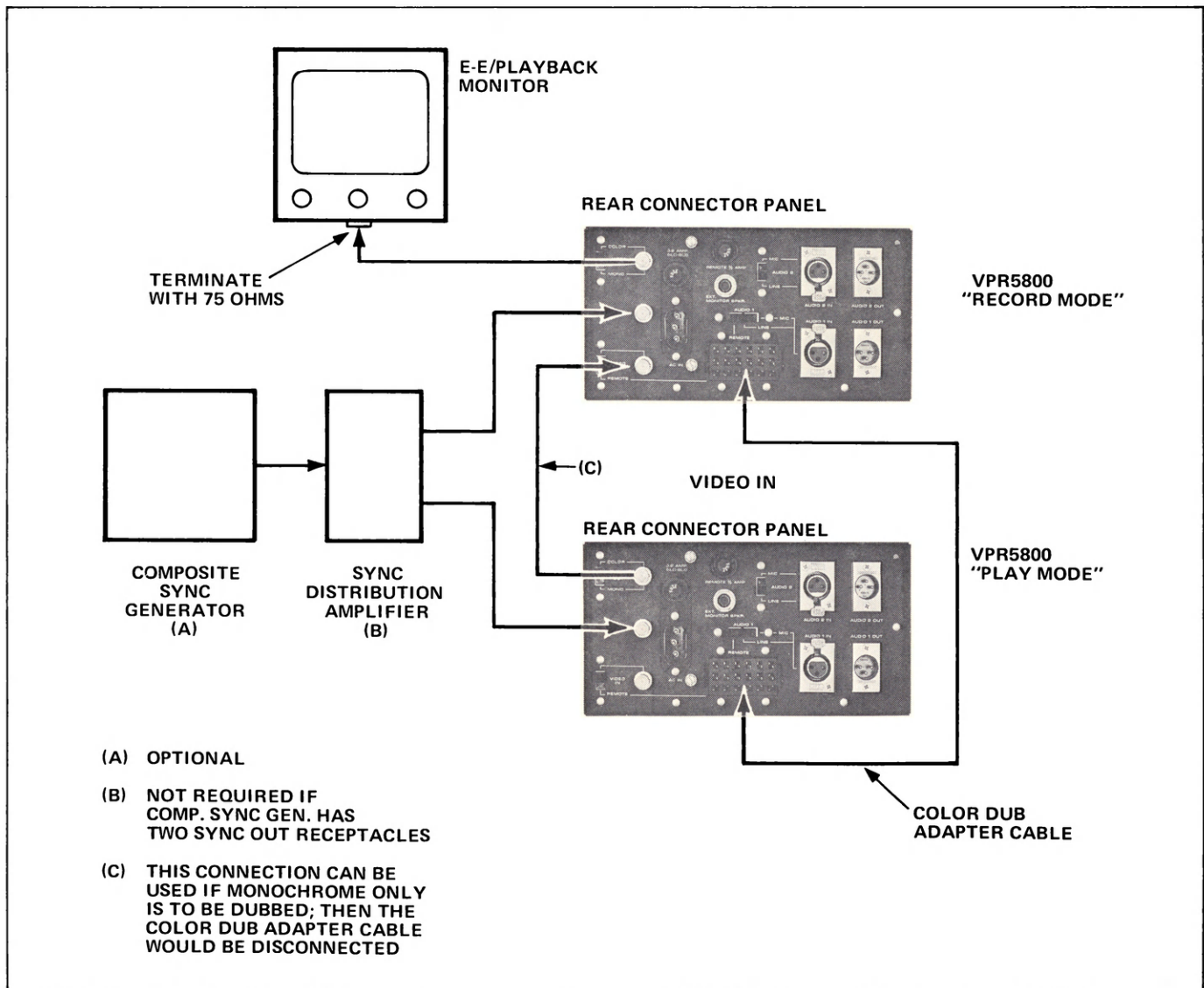


Figure 14 Recommended Connections for Recording (Dubbing) From One VPR5800 to Another

OPERATION OF VPR5800 WITH A TV RECEIVER/MONITOR

When using a TV Receiver/Monitor as a video source and/or playback monitor for the VPR5800, observe the following precautions.

1. Operation of the VPR5800 in the RECORD mode requires the signal connections shown in figure 15A.
2. Operation of the VPR5800 in the PLAY mode requires only one signal connection as shown in figure 15B.
3. If an EDIT operation is to be performed with a TV Receiver/Monitor used as the video source, a second

monitor/receiver or monitor will be required to view the playback signal. The E-E video signal will also be displayed on the second monitor. Connect the signal lines as shown in figure 15C.

NOTE

The viewfinder section of a CC450 or CC330 camera, if available, could be used for the E-E and playback monitor.

The precautions described in steps 1, 2 and 3 arise from the fact that many TV Receiver/Monitors (including the

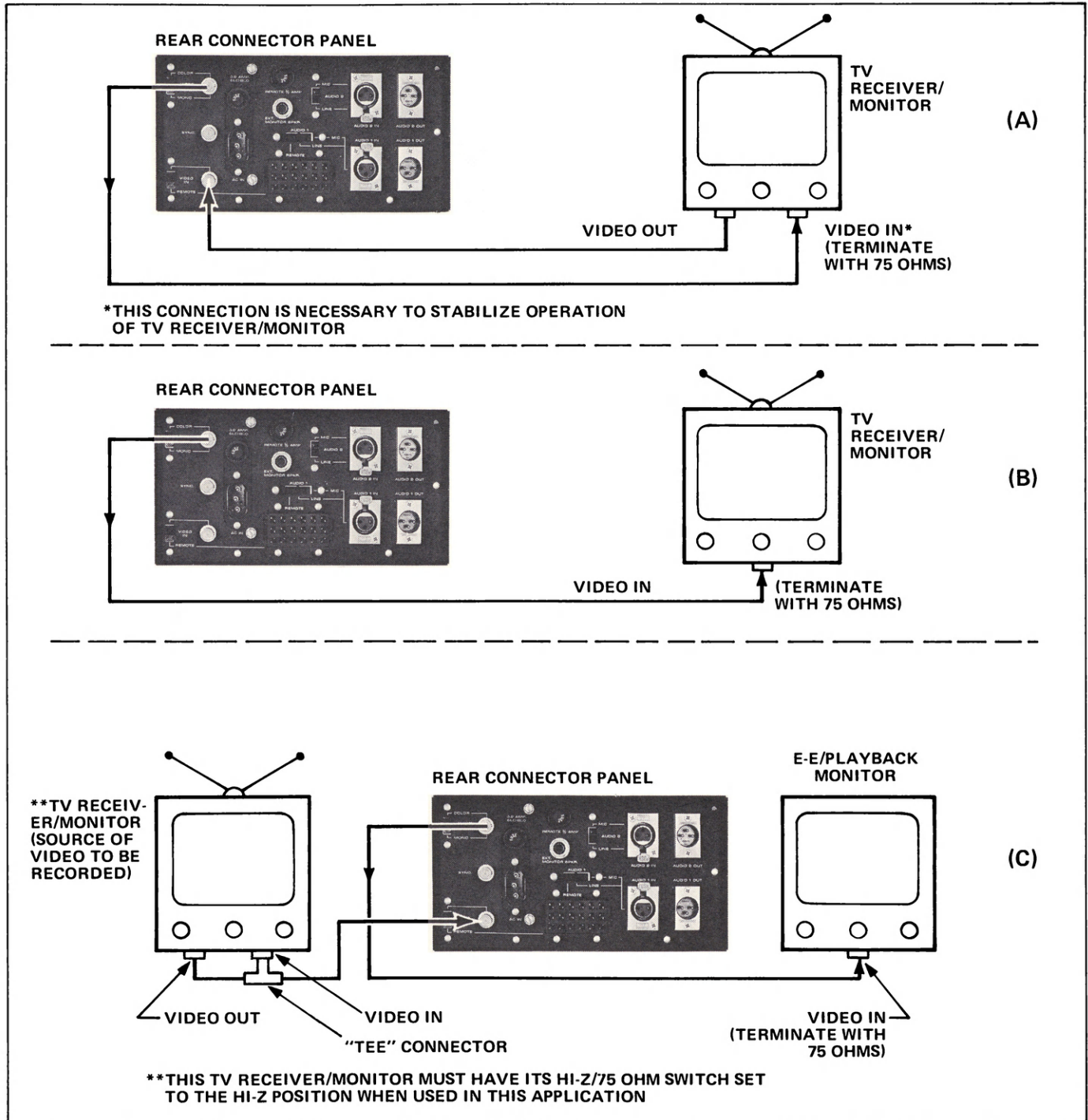


Figure 15 Operation of VPR5800 with a TV Receiver/Monitor

Ampex/Motorola units) use an AGC circuit arrangement. The AGC controls the gain of the receiver section in response to information derived from the video signal in the monitor section. This causes no problem in its use as a complete receiver, or as a video source for the VPR5800 in the RECORD mode when the monitor section is displaying the E-E signal. This is because the video information being received, and the video being displayed, are in synchronism. When this is not the case, as in normal PLAY or in playback before an edit, the video signal in the monitor section causes significant disturbances to the video signal in the receiver section. These disturbances are coupled to the recorder through the usual monitor/receiver Video Out receptacle to the recorder Video In receptacle. The drum servo is referenced to the incoming video signal in the PLAY mode when a video input is connected to the recorder. As a consequence, the servo system is influenced by the aforementioned video signal disturbances, which results in unstable playback operation and bad edit transitions. The problem is eliminated when the recorder's video input is disconnected and the servo switches to its internal reference.

If a monitor/receiver is used as a video source for the VPR5800 and no input is provided to the monitor section, a similar servo instability will be evident. This is again a result of the AGC arrangement in the monitor/receiver. With no video input to the monitor, the AGC is without a reference and causes signal disturbances in the receiver section.

These disturbances appear at the recorder Video Input and cause a servo instability as previously described. This can be avoided by providing a video input to the monitor section as indicated in either step 1 or 3.

STILLFRAMING

A stillframe is a single field of a TV picture displayed on the monitor as a still picture. It is very similar to stop motion as used with a film-type motion picture projector.

To stillframe, play back the tape until the portion to be stillframed appears on the monitor. Allow that portion to pass for a second; then depress the STOP button. When the tape motion has stopped, the tape will slacken around the drum. This is because of the tape-slackener feature in the take-up turntable. To overcome this slack, it will be necessary to manually rotate the supply reel clockwise until the tape contacts the rotating drum uniformly, and a stable picture appears. Rotating the supply reel clockwise will also allow the operator to return to the portion of tape that is to be viewed as a stillframe, which can be termed as "backing in". This "backing in" method should always be used when attempting stillframe operation to produce the most satisfactory results.

The stillframe should hold for a minimum of 1½ minutes.

- NOTES -

ELECTRONIC EDITING

GENERAL

The two electronic editing modes of this recorder are designed to permit the assembling, or inserting, of color and monochrome video segments on a blank, or previously recorded, tape. This is accomplished without the picture disturbances characteristic of start-stop recording and/or spliced edits. Optimum results will be realized if previously recorded tape, and subsequent editing of the same, is performed on a single recorder.

The ASSEMBLE EDIT mode of the VPR5800 is intended for assembling (sequentially) a series of new video segments on a blank tape, or adding to the end of existing video of a previously recorded tape.

When new video segments are sequentially assembled on a blank tape, it will be necessary to record an additional five or more seconds of video at the end of each segment. This is necessary to ensure that sufficient synchronizing information (control track) will be available at the end of the previous segment to "lock" it to the new (edit) segment. Conversely, it is essential that the ASSEMBLE EDIT recording begin prior to the end of the aforementioned five second period.

The INSERT EDIT mode of the VPR5800 is used when it

is desired to insert new video material somewhere within existing video on a previously recorded tape.

There is no time restriction on the length of an INSERT EDIT recording, other than it must be terminated before the end of the previously recorded video. This is necessary to ensure a smooth transition out of the INSERT EDIT recording, and back to the previously recorded video. The reason for this is because no new control track is recorded during an INSERT EDIT recording mode; instead the tape operates from the control track of the previously recorded video. Therefore, if it is known that an edit recording will go past the end of the previously recorded video, use the ASSEMBLE EDIT recording mode.

Figure 16 illustrates recommended connections for performing ASSEMBLE or INSERT EDIT recordings. The composite sync generator shown is optional; however, it is a desirable component during an editing function, in that both the PLAY unit and RECORD unit would be locked to the same external sync source. This setup would provide maximum servo lock-in between the two units. Note however, that the source of video (PLAY unit) must have an input receptacle for receiving the external sync. DO NOT attempt to operate with the external sync connected to only one of the units.

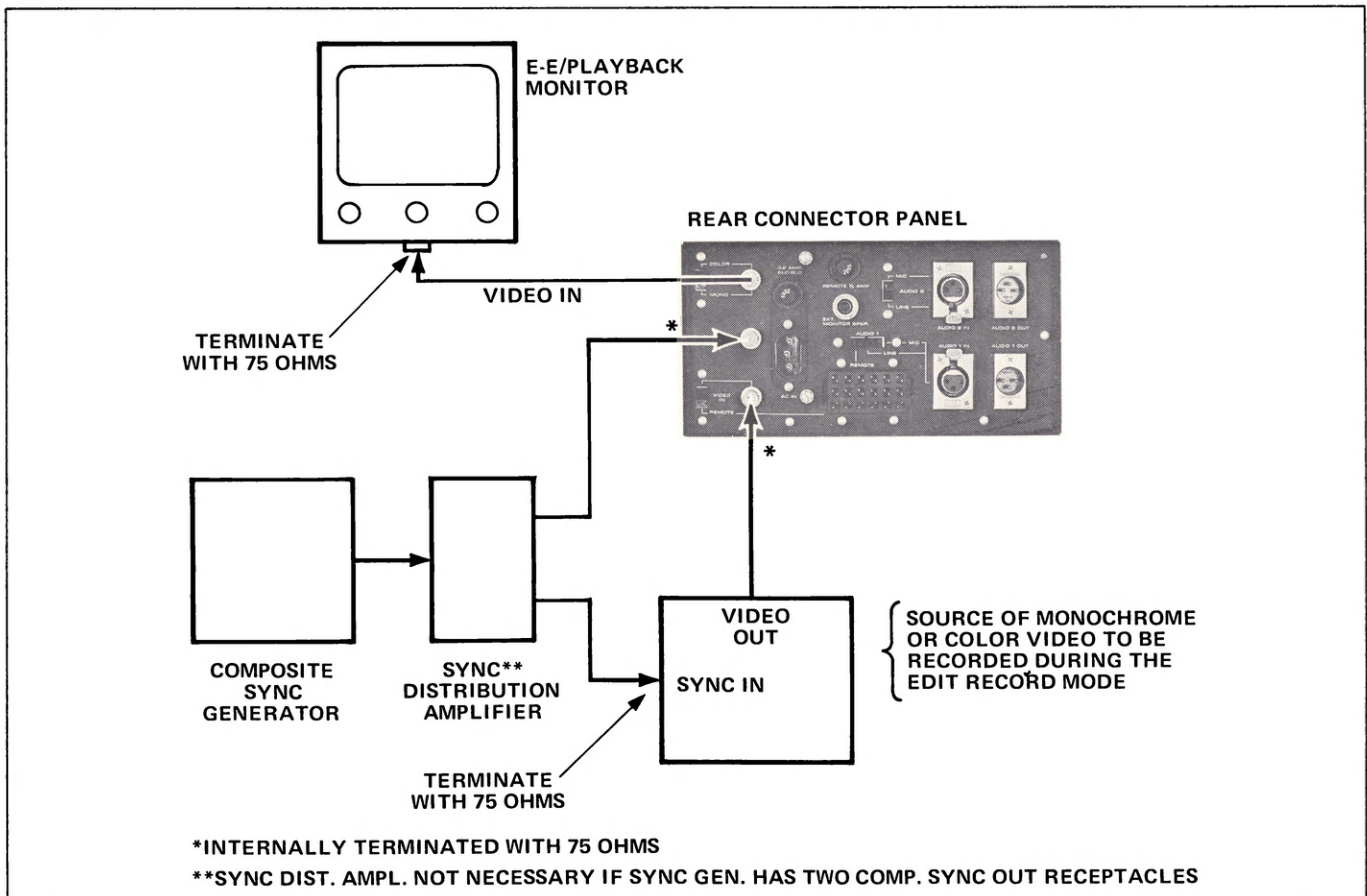


Figure 16: Recommended Connections when Performing an Assemble or Insert Edit Recording

ASSEMBLE EDIT RECORDING PROCEDURE

When an ASSEMBLE EDIT is to be made on a previously recorded tape, use the following step by step procedure.

NOTE

If a blank tape is to be used for assembling video from several sources sequentially, it will be necessary to record the first segment using normal recording procedures. Reference the recording procedure that will be applicable for the first segment; Recording Video from a CC450 Camera, Recording Video only, Recording Video, Audio 1 and Audio 2 simultaneously, etc. After the first video segment has been recorded, use the same following step by step procedure for recording additional ASSEMBLE EDITS.

1. Connect the video source to be ASSEMBLE EDIT recorded to the Video In receptacle or Remote receptacle (Refer to figure 16); set the Video In selector to the appropriate setting.
2. Place the Carrier selector (item 1, figure 17) in the position that will correspond to the carrier frequency (High or Low) of the tape being used for the ASSEMBLE EDIT recording.
3. Set the Edit mode selector (item 2, figure 17) to the ASSEMBLE position. The red Editor Indicator (item 3, figure 17) will light at this point.
4. Place the Video (and Audio) Record/Play Lever(s) (item 4 and 5, figure 17) in the left-hand (RECORD) position.
5. Adjust the Video Record Level control (item 6, figure 17) for a 100% indication (during peak white scenes) on the Video Record Level meter (item 7, figure 17).

NOTE

Steps 6 and 7 are included in the event audio is desired during the ASSEMBLE EDIT record mode.

6. Reference steps 1 thru 4 of the RECORDING AUDIO 1 CHANNEL ONLY procedure (page 19) for setting up

audio 1, which will be ASSEMBLE EDIT recorded with the video.

7. Reference steps 1, 2, 4 and 5 of the RECORDING AUDIO 2 CHANNEL ONLY procedure (page 19) for setting up audio 2, which will be ASSEMBLE EDIT recorded with the video.

8. Place the Video (and Audio) Record/Play Lever(s) (item 4 and 5, figure 17) in the right-hand (PLAY) position after the video (and audio) record level(s) have been properly set up.

9. Rewind the tape to a point approximately one minute ahead of the desired edit transition point.

10. Depress the Play button (item 8, figure 17) to start the PLAY mode and tape movement.

11. There are two methods of adjusting the Playback Tracking control (item 9, figure 17); they are as follows:

- a. "Set" position — Rotate the control clockwise to the "set" position when the edit recording is being made on a tape that was originally recorded on this VPR5800.
 - b. "Variable" tracking adjustment — Adjust the control for a maximum indication on the Video Record Level meter (item 7, figure 17) when the edit recording is being made on a tape that was NOT originated on this VPR5800.
- DO NOT rotate or attempt to adjust the Playback Tracking control once the edit recording has been initiated.

NOTE

ASSEMBLE EDIT TRANSITION NOISE using the "variable" tracking method — If the Playback Tracking control has been properly adjusted in accordance with step 11b, there will be no discernible noise during the two to three second transition/overlap period after the ASSEMBLE EDIT recording is initiated. However, if the Playback Tracking control is NOT adjusted for maximum, a two to three second wipe of noise may be visible at the beginning of the edit recording. The severity of the video noise will be

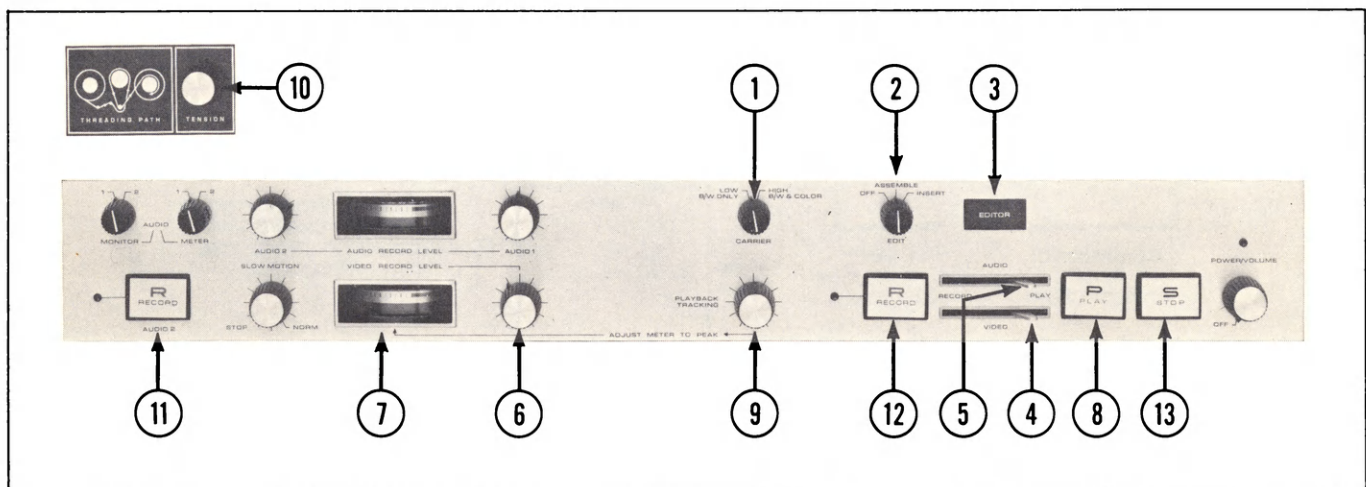


Figure 17 Assemble and Insert Edit Recording Operation

dependent on the extent of misadjustment of the Playback Tracking control prior to the point of editing.

The two to three second wipe of video noise is a result of incomplete erasure of the previously recorded video tracks. This can occur if the Playback Tracking control is not adjusted properly. After the three second interval has passed, full tape erasure occurs before new video is recorded; thus eliminating potential background video noise.

12. Adjust the Tension control (item 10, figure 17) for minimum bending or hooking at the top of the picture.

13. Observe the monitor and preview the off-tape video for the point at which the edit is to be made. When the point for the edit appears, place the Video and Audio Record/Play Levers (item 4 and 5, figure 17) in the left-hand (RECORD) position. This action places the recorder in the ASSEMBLE EDIT mode whereby new video plus audio 1 begins recording.

If the Audio 2 channel was set up to be a part of the ASSEMBLE EDIT, the Audio 2 Record button (item 11, figure 17) must be depressed simultaneously with the Main Record button (item 12, figure 17), when the Video and Audio Record/Play Levers (item 4 and 5, figure 17) are placed in the left-hand (RECORD) position.

14. To terminate the ASSEMBLE EDIT recording, depress the Stop button (item 13, figure 17). Place the Video and Audio Record/Play Levers (item 4 and 5, figure 17) to the right-hand (PLAY) position.

15. Rewind the tape to a point just before the edit mode was initiated.

NOTE

Do not allow the tape to remain in the STOP mode following rewind without introducing some slack in the tape loop around the rotating drum.

16. Repeat steps 10 through 12 (inclusive).

17. When the entrance point of the new video that was recorded during the edit mode is reached, evaluate the transition and note that no picture roll or transients appear.

INSERT EDIT RECORDING PROCEDURE

To perform an INSERT EDIT recording on a previously recorded tape, use the following step by step procedure.

1. Connect the video source to be INSERT EDIT recorded to the Video In receptacle or Remote receptacle (Refer to figure 16); set the Video In selector to the appropriate setting.

2. Place the Carrier selector (item 1, figure 17) in the position that will correspond to the carrier frequency (High or Low) of the tape being used for the INSERT EDIT recording.

3. Set the Edit Mode selector (item 2, figure 17) to the

INSERT position. The red Editor Indicator (item 3, figure 17) will light at this point.

4. Place the Video (and Audio) Record/Play Lever(s) (item 4 and 5, figure 17) in the left-hand (RECORD) position.

5. Adjust the Video Record Level control (item 6, figure 17) for a 100% indication (during peak white scenes) on the Video Record Level meter (item 7, figure 17).

NOTE

Steps 6 and 7 are included in the event new audio is desired during the INSERT EDIT record mode.

6. Reference steps 1 thru 4 of the RECORDING AUDIO 1 CHANNEL ONLY Procedure (page 19) for setting up audio 1, which will be INSERT EDIT recorded with the video.

7. Reference steps 1, 2, 4 and 5 of the RECORDING AUDIO 2 CHANNEL ONLY procedure (page 19) for setting up audio 2, which will be INSERT EDIT recorded with the video.

8. Place the Video (and Audio) Record/Play Lever(s) (item 4 and 5, figure 17) in the right-hand (PLAY) position after the video (and audio) record level(s) have been properly set up.

9. Rewind the tape to a point approximately one minute ahead of the desired edit transition point.

10. Depress the Play button (item 8, figure 17) to start the PLAY mode and tape movement.

11. There are two methods of adjusting the Playback Tracking control (item 9, figure 17); they are as follows:

a. "Set" position — Rotate the control clockwise to the "set" position when the edit recording is being made on a tape that was originally recorded on this VPR5800.

b. "Variable" tracking adjustment — Adjust the control for a maximum indication on the Video Record Level meter (item 7, figure 17) when the edit recording is being made on a tape that was NOT originated on this VPR5800.

DO NOT rotate or attempt to adjust the Playback Tracking control once the edit recording has been initiated.

NOTE

INSERT EDIT TRANSITION NOISE using the "variable" tracking method — If the Playback Tracking control has been properly adjusted in accordance with step 11b, there will be no discernible noise during the edit recording and subsequent playback. However, if the Playback Tracking control is NOT adjusted for maximum, a wipe of noise will be visible during the entire INSERT EDIT recording. The severity of the noise will be dependent on the extent of misadjustment of the Playback Tracking control prior to the point of editing.

Therefore, adjusting the Playback Tracking control for maximum during an INSERT EDIT mode is even

more important than in the ASSEMBLE EDIT mode. This is because the transverse video erase head is not energized at any time during the INSERT EDIT recording. Therefore complete video erasure depends on the rotating edit erase head. Thus the necessity for accurate tracking adjustment.

12. Adjust the Tension control (item 10, figure 17) for minimum bending or hooking at the top of the picture.

13. Observe the monitor and preview the off-tape video for the point at which the edit is to be made. When the point for the edit appears, place the Video and Audio Record/Play Levers (item 4 and 5, figure 17) in the left-hand (RECORD) position. This action places the recorder in the INSERT EDIT mode whereby new video plus audio 1 begins recording.

If the audio 2 channel was set up to be a part of the INSERT EDIT, the Audio 2 Record button (item 11, figure 17) must be depressed simultaneously with the Main Record button (item 12, figure 17), when the Video and

Audio Record/Play Levers (item 4 and 5, figure 17) are placed in the left-hand (RECORD) position.

14. To terminate the INSERT EDIT recording, depress the Stop button (item 13, figure 17). Place the Video and Audio Record/Play Levers (item 4 and 5, figure 17) in the right-hand (PLAY) position.

15. Rewind the tape to a point just before the edit mode was initiated.

NOTE

Do not allow the tape to remain in the STOP mode following rewind without introducing some slack in the tape loop around the rotating drum.

16. Repeat steps 10 through 12 (inclusive).

17. When the entrance point of the new video that was recorded during the edit mode is reached, evaluate the transition and note that no picture roll or transients appear. Allow the playback to continue to evaluate the exit point of the INSERT EDIT recording also.

-NOTES-

ROUTINE PREVENTIVE MAINTENANCE

GENERAL

The Ampex Model VPR5800 is a precision mechanism and requires occasional maintenance. To realize optimum performance and reliability, minor maintenance should be performed whenever needed. The following paragraphs give brief operator maintenance information. The recorder should always be turned off before any operator maintenance is performed.

DEMAGNETIZING THE HEADS

Demagnetizing the heads, and periodically the tape guide rollers, should be a part of the routine preventive maintenance performed on this unit. This is to minimize residual magnetism from building up, which could affect the quality of the recorded material on the tape.

(Reference figure 18)

1. Turn the recorder power off.
2. Plug the head demagnetizer's AC cord in a wall outlet (117 volts AC).
3. Align the tips of the demagnetizer so that they straddle the audio 1 record/play head gap. Do not touch the surface of the head with the metal tips of the demagnetizer.
4. Move the demagnetizer tips up and down the head several times; then slowly withdraw the demagnetizer.
5. Repeat steps 3 and 4 for the remaining stationary heads, and the rotating video record/play head and edit erase head.
6. Demagnetize the tape guide rollers and tape guides.

CLEANING THE HEADS

Dust and oxide from the magnetic tape may accumulate on the magnetic heads of the recorder and impair their efficiency ... or even decrease head life. Therefore, periodic cleaning of the heads is required.

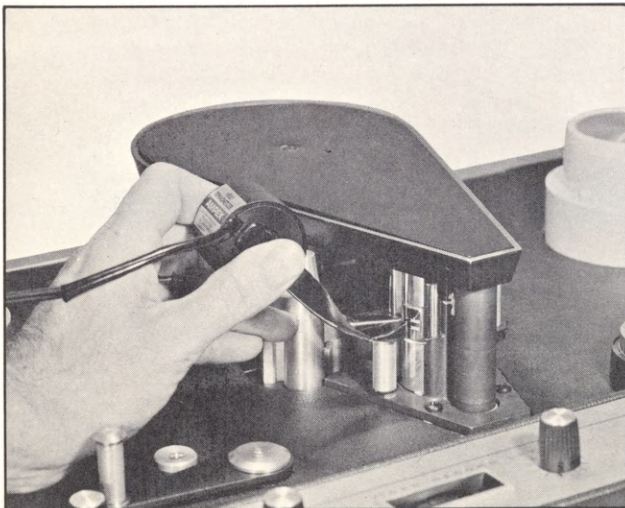


Figure 18 Demagnetizing Heads

There are six heads in the VPR5800 recorder. Each of these heads should be cleaned after every 10 hours of use. At the same time, clean the tape rollers, tape guides, and the upper and lower drums in the tape-threading path.

NOTE

Allow cleaner to air-dry several minutes before attempting to use the recorder.

(Reference figure 19)

To clean the heads, use a cotton swab moistened in standard AMPEX Head Cleaner, Accessory No. 323. Do not use any other solvents on the heads, or you may damage them. Never use an abrasive or any metallic object that might cause scratches or nicks. Do not allow head cleaner to spill on any plastic or rubber surfaces.

Clean the rubber-sleeved split capstan with a clean lintless cloth moistened with denatured or isopropyl alcohol. Do not use the aforementioned head cleaner to clean the rubber-sleeved capstan.

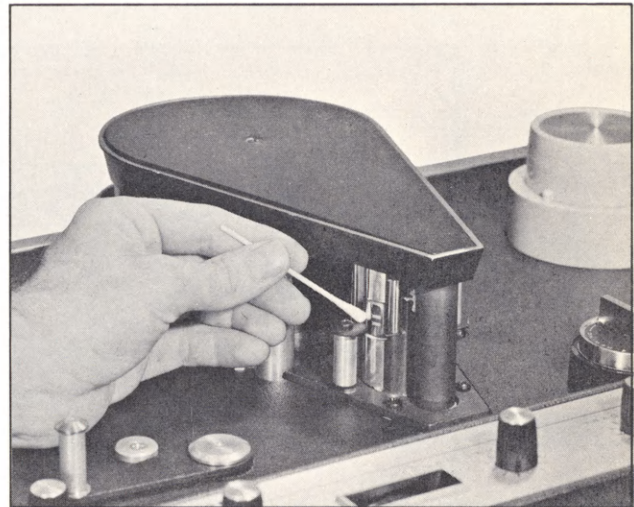


Figure 19 Cleaning Heads

CLEANING THE DUST COVER WINDOW

The plexiglass viewing window should be cleaned with a clean, water moistened, cloth to remove finger prints and dust. DO NOT attempt to use any solvents or commercial glass cleaner as this could mar the finish.

VIDEO TAPE

Magnetic tape is a strong permanent recording medium, unaffected by ordinary handling or storage. However, it should be kept away from heat, moisture, and other magnetic materials. Avoid stretching the tape, or you will distort and destroy the quality of the recording. Avoid contact with the oxide surface of the tape as fingerprints or other contamination of oxide surface may cause the

video head to clog (oxide buildup on surface of head) and result in loss of signal during recording or playback. It is recommended that AMPEX one-inch video tape be used with this unit.

SPLICING PRERECORDED HELICAL SCAN VIDEOTAPE

In the event that a recorded video tape is broken, splicing may be appropriate.

A review of the record format is beneficial when splicing one-inch helical scan video tape (Reference figure 20). The video information, recorded on the tape, is a series of parallel diagonal tracks that extend almost all the way across the tape. In the case of the Ampex 1" format, these tracks are 16.6 inches long, at a $3^{\circ} 6'$ angle to the edges of the tape, and contain the information for a complete TV field. In addition, a control track is recorded longitudinally along the upper edge of the tape. The control track consists of a series of uniformly-spaced pulses. These pulses are used by the recorder to control the rotation of the rotating drum assembly so that the video head is in the proper position to follow the recorded video tracks.

The type of splice used in editing video tape depends upon the type of transition between scenes. If it is necessary to obtain an instantaneous transition from one scene to

another, the splice must be parallel to the diagonal video tracks, and the control track pulse position error between the two pieces must not exceed .010 inches across the splice (Reference point "A" and "B" in figure 21). "Edivue"* can be used to make the magnetic tracks on the tape visible before making the splice.

A smooth transition between scenes can be obtained from a simple transverse splice if the control track pulse rate is not disturbed by the splice (Reference point "B" and "C" in figure 21). In this case, the information of the new scene will appear at the top of the monitor and then sweep downward, replacing the old scene. The transition time is 1-3/4 seconds. In making such a splice, it is also necessary to use "Edivue"* to identify the position of the control track pulses on the tape.

If a transverse splice is made without attention to the position of a control track pulse, the monitor may roll during the transition; however, the picture disturbance will be under two seconds in duration. Because this type of splice is the simplest, it is recommended for splicing recorded tape if a picture roll can be tolerated, and for all

*Edivue is an AMPEX product. Other magnetic tape developing solutions are commercially available and may also be used.

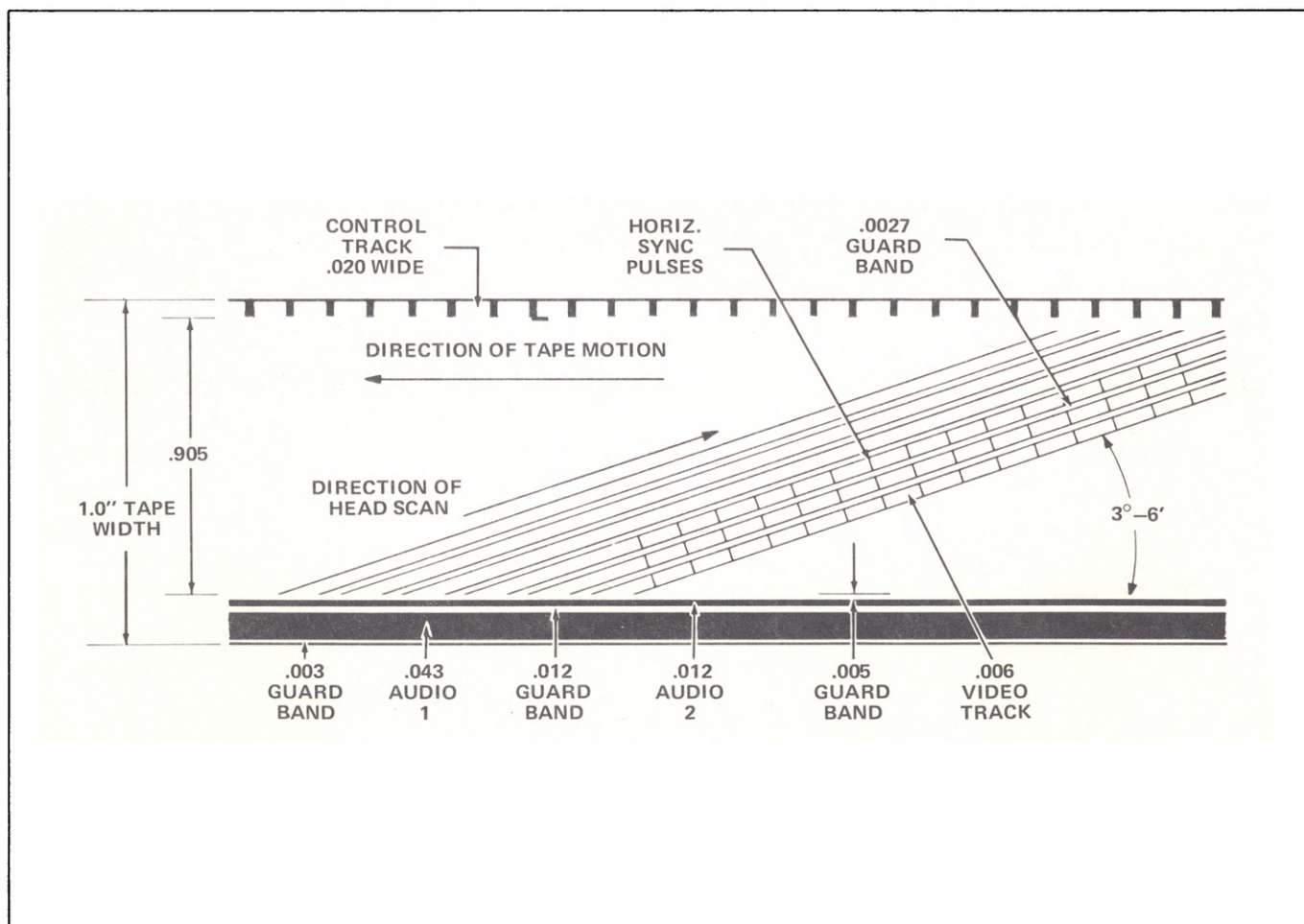


Figure 20 1" Helical Scan Video Tape Recording Format

splicing of blank tape. The only requirements for making a transverse splice are as follows:

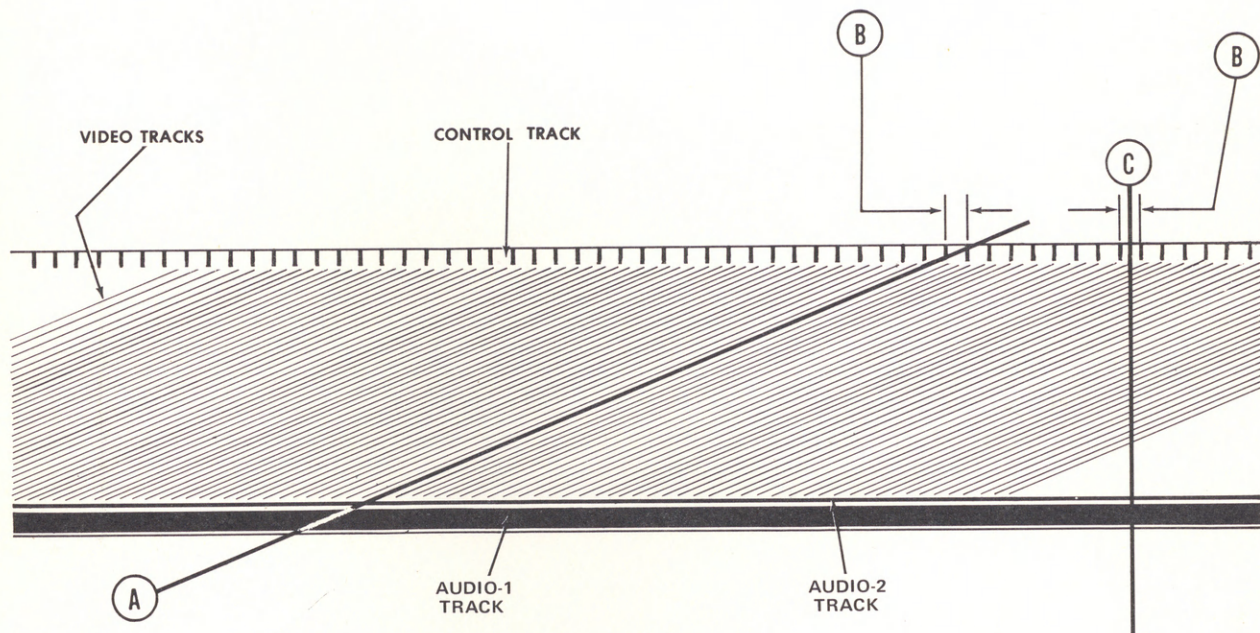
1. The edges of the two pieces of tape must be precisely aligned so that there is no lateral displacement of the two pieces of tape at the splice and so that the two pieces of tape are parallel to each other. Failure to comply with this requirement will, at a minimum, increase the duration of the picture disturbance and may cause the recorder to stall.
2. The ends of the two pieces of tape must be butted together with a maximum of .010 inches clearance and no overlap.
3. A proper splicing tape must be used. The splicing tape

is applied to the back, or non-oxide side of the tape only. This is the side of the tape that does not contact the recording heads.

4. The splicing tape must be trimmed so that it does not extend beyond the sides of the tape. It is permissible to under cut the edges of the tape at the splice area to meet this requirement.

There are several tape splicers on the market that will meet requirements 1 and 2. These are available at Radio/TV distributors.

Splicing tape should preferably be ½ inch wide, .0005 inch thick and aluminized.



- A. Cut as indicated for an instantaneous transition from one scene to another.
- B. The maximum control track disturbance between the two pieces of tape must not exceed .010 inches.
- C. Cut as indicated for a transverse splice if a disturbance between scenes is permissible.

Figure 21 Splicing 1" Helical Scan Video Tape

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